sustainability

MDPI

Review

Climate Change and the Diversification of Green Social Capital in the International Political Economy of the Middle East and North Africa: A Review Article

Mohd Irwan Syazli Saidin [1,2,*] and Jodie O'Neill [3]

[1] Centre for Research in History, Politics and International Affairs, Faculty of Social Sciences and Humanities, Universiti Kebangsaan Malaysia, Bangi 43600, Malaysia
[2] School of Government and International Affairs, Durham University, Durham DH1 3TU, UK
[3] Department of Politics, College of Social Science and International Studies, University of Exeter, Exeter EX4 4RJ, UK; jodieoneill6@gmail.com
* Correspondence: irwansyazli@ukm.edu.my

Abstract: This article critically reviews the idea of economic diversification of green social capital in the Middle East and North Africa (MENA) through renewable and sustainable energy projects that strive to tackle climate change and alleviate the negative consequences of human interaction in the ecological system. The western dominance and monopolisation of natural resources has caused an unlevel playing field for development, economic advancement and climate change in the region through the imbalance of power in the oil market. The reliance on oil could affect the development in the region with long-term financial recession due to heavy reliance on the resource. These challenges posit a question for the Middle East: (1) how can the region adopt a transition to a diverse economic framework that is less reliant on oil, and (2) since the phenomenon of climate change does not discriminate its adverse effects on the global community, including the aspect of international political economy in the region, in what ways are the MENA nations planning to stimulate sustainable economic development via green social capital? Our review for these issues is based on a qualitative approach and is methodologically centred upon selected case studies and document analysis of literature on economic diversification and sustainable ecological innovations via green social capital enterprises in the MENA region. We argue that green social capital, as opposed to traditional capitalism, has positive effects in the MENA region such as creating new job opportunities, boosting the economy and developing knowledge on climate change. The green social capital approach is viewed to continue to have positive results in the region through investment, the collaboration between the public sector and private enterprises and creating innovative ideas. Green social capital is not perfect by any means, but the method is diverse from traditional capitalism which can benefit the population in the global south, particularly in the MENA region.

Keywords: green social capital; international political economy; development; renewable energy; climate change; Middle East and North Africa

Citation: Saidin, M.I.S.; O'Neill, J. Climate Change and the Diversification of Green Social Capital in the International Political Economy of the Middle East and North Africa: A Review Article. *Sustainability* **2022**, *14*, 3756. https://doi.org/10.3390/su14073756

Academic Editors: Baojie He, Luigi Aldieri, Ayyoob Sharifi, Chi Feng and Jun Yang

Received: 8 February 2022
Accepted: 11 March 2022
Published: 22 March 2022

1. Introduction

The turn of the twentieth century marked the beginning of MENA's reliance on oil as an export source. Since 1918, oil has become the most prominent and influential natural resource that drives the whole economy of the Middle East [1] (p. 263). Alan Richards and John Waterbury highlight that the Middle East throughout history has been centre stage in global politics and has been endlessly fought over due to its strategic importance and significant geopolitical resources [2] (p. 2). The economic reliance that MENA has upon oil is unprecedented as oil accounts for the vast majority of total exports in half of the oil-exporting economies, which are vulnerable to changes in global demand that can affect exports and imports, as well as cause the price of oil to rise or decline radically. The Middle

East has experienced various economic structures from socialist-based financial planning to attempting to open markets to the Washington consensus. However, neither path has been successful in diversifying and modernising the economies for most citizens. At present, the reliance on oil is still present and the economies of the Middle East could be threatened with long-term stagnation or financial recession due to heavy reliance on the resource.

MENA's economic reliance that emerged in the twentieth century through Western interest has created a dependency culture upon oil in the region. What appeared, therefore, was an international rivalry over the region's area due to its strategic importance and oil exports, which would ultimately become the regions "curse and its blessing" [2] (p. 2). Nationalisation and socialist economic planning would arise during the 1970s with the aim of MENA political parties and economists retrieving their voices, identity and sovereignty through the market. Nevertheless, the macro imbalances pushed aside these policies in favour of the not-so-great Washington Consensus that favoured liberalisation and laissez-faire economics, but this too has become a doctrine of the past. The twenty-first century is now and should be led by the realities of the adverse effects of climate change and how the international community is going to adapt to these issues. The oil market is and will become even more increasingly unpopular given the dirty energy and emissions it creates. The MENA region must diversify their economy to meet the demands of their young, sizeable workforce to ensure sustainability and tackle the damaging ecological changes in their nations. The twenty-first century should also bring new requirements to the international community such as the need to adopt green energy and to stabilise global relations in an unpredictable climate. These challenges provide a specific yet complicated dilemma for the Middle East; how can the region adopt a transition to a diverse economic framework that is less reliant on oil and in what ways are oil-exporting Middle East and North African nations planning to stimulate sustainable economic development? Finally, is it in the interest of the Western states for the Middle East and North African states to adopt a new economic strategy moving towards a new frontier?

We argue that the traditional bottom-up approach will not work when investigating MENA's relationship with climate change and that a combination of a new bottom-up and top-down approach driven by green social capital through investment and public innovation is the new framework needed to ensure progression. The nature of this review is to demonstrate how green social capital can alleviate the adverse effects of environmental change while stimulating and diversifying the economy in MENA. This is a very new perspective in international relations and the limited number of academic works specifically relatable to this topic has at times been difficult. Therefore, the methodological decisions based on the available literature have been amended to ensure a widespread and thorough analysis of this topic while laying the foundation of a new environmental-economic perspective to the region.

The nature of green social capital enterprise by definition is different to traditional industrial capital (driven by profit, low-cost overheads and through interaction with foreign markets) by ensuring that the central motif of ecological reform, adaptation and innovations are centred at the forefront of projects. Green social capital is equal to industrial capital regarding profit, but the former ensures that profit is stimulated back into sustainable projects and scientific research advancement rather than for the individual benefit of a select bourgeois and hierarchy. Sustainable development and ecological projects in the Middle East and North Africa will have the requirements of stakeholders and public needs at the centre of their productions, aiming to ensure a better quality of life through green innovations.

Thus, in what ways can green social capital diversify the international political economy of MENA and tackle the adverse effects of climate change? This prime question will be reviewed via two main discussions. First, damaging ecological changes through both human and natural interference is the cause of conflict, and the creation of climate-displaced people and regional rivalry in MENA will be explored in the earlier part of our discussion. Scientific data concerning areas across MENA will be included to understand

the severity and urgent need for action to be taken. Also, the link between climate change, conflict, water and food scarcity and war and persecution will be evaluated through the terminology of climate-displaced people, a new theoretical understanding of those who are forced to migrate by unliveable regions. Furthermore, the relationship between conflicts concerning the Syrian Civil War will be addressed regarding climate change and how environmental damages have heightened already present tensions in vulnerable locations in MENA. Secondly, the case for renewable energy, green growth and promoting economic diversification in MENA will be analysed in the final part of the discussion, documenting the widely known bottom-up and top-down approaches while offering a new lens to the debate. The argument for green social capital is incorporated through the decolonisation process of climate change that enables to retrieve back the identity of government and businesses in MENA through renewable energy enterprises that can determine the future advancements regarding climate change. The demand and need for green growth are justified in more depth, closing the discussion. Finally, the conclusion will bring all areas of the review together to identify the positive of green social capital. The conclusion hopes to raise awareness of the broad experiences and needs for the future that accommodate the nature of our review and will attempt to encourage further debate and analysis.

2. Methods

The review is centred upon document analysis on economic diversification and sustainable ecological innovations through green social capital enterprises in the MENA region. The aim is to highlight the impact of climate change in this area and what could happen if changes are not implemented. Suggestions and solutions are offered through green social capital enterprises. The methodology is qualitative in nature given the reliance on secondary literature aimed to provide a broad perspective on the experiences of conflict exacerbated by climate, population, urbanisation and migration and finally the amendments that green social capital must make to tackle these issues. The qualitative analysis is also focused on data concerning environmental risks and ecological changes, and statistics concerning the sustainable energy workforce are referenced from secondary literature (published materials via books, journal articles, official reports and government portals) and global institutions to provide numerical value to the relationship between climate change and green innovative projects in MENA. The case study approach will appear in the main discussion when research of climate change and renewable energy projects are explored through the case of Syrian conflict in the post-Arab Uprisings and the development of Masdar City in UAE. The case studies will help to place the hypotheses advocated through social green capital into practice, providing debate concerning the ideological implications of this method.

3. Literature Review

The consensus amongst academics regarding the primary driver of the Persian Gulf economy is the natural resource of oil. Halliday argues that simply oil is the essential economic factor for the whole of the Middle East [1] (pp. 263–264). In agreement with Halliday, Richards and Waterbury emphasise the significance of oil in being detrimental to the economy and add that the political economy of the Middle East is dominated by three simple facts: little rain, much oil and increasingly many young people [2] (p. 44). Population growth is a factor that Richard and Waterbury analyse in more depth than Halliday who appears to concentrate more on the effects of globalisation on international relations between the Middle East and Western superpowers. The population expansion of the region is only second to the population growth of sub-Saharan Africa, resulting in most people in the MENA region being under twenty years old and based in cities [2] (p. 45).

The end of the oil boom resulted in questions emerging concerning economic centralisation and the levels of state intervention in the Middle East. The issue of privatisation has come to dominate the economic agenda as some economists view the policy as a pathway towards stimulating adjustment and development. After the fight for independence

in many nations in the Middle East, centralised economics was preferred to protect the national industries from foreign interference. The measures of nationalisation in the public sector came to dominate all aspects of economic life and the private sector was reduced to a subsidiary role. The only exception to this was the private sector of agricultural land ownership. Ideology did play a role in determining the economy and creating a new identity post-independence, but central planning was selected for pragmatic reasons. This enabled governments to intervene in the production and distribution of goods to control strategic natural resources and in some cases to cover the absence of a private sector willing to invest in industries.

Socialist economic planning was thought to have transformed and modernised the Middle Eastern economies, but performance resulted in deficits and low return on capital investment. Therefore, privatisation became the force to save the economy from oil shocks and declines in the price of export commodities. The international community's answer to help implement neo-liberal free market values was the economist John Williamson's term called the "Washington Consensus" [2] (p. 228). It was a response to the macro imbalances associated with state-led growth prominent in Middle Eastern economies. The answer to the problem would be to provide macroeconomic stability through greater openness to international trade, privatisation of state-owned enterprises, and policies to reduce the role of the state. Richards and Waterbury identify that two great games dominate economic relations: the game of international relations and the political economy of development [2]. Following 9/11, the Washington Consensus was used as a method to promote economic prosperity in the hope of easing tensions concerning the United States and the Middle East. However, the Washington Consensus did almost nothing to encourage growth in the MENA region. The countries that grew significantly were the East "Asian Tigers" and China, the latter of which adopted market-Leninism instead of neo-liberal economics.

The ideas of the authors explored above and the intrinsically close relationship between oil and the economy clarify how the political, economic and social realities of MENA have evolved throughout recent history. However, the economics of oil is now becoming a concept of the past and the reality of environmental change is growing in significance on the international political agenda. However, what is needed now is a new perspective on MENA that focuses on the adverse effects of climate change in the region as well as promoting sustainable economic growth through a new emerging market of renewable energy. Green social capital is a very new concept, let alone when concerning MENA economics, but there is great room for innovation in MENA given the large population, growing levels of educated graduates and of course the growing alarm of ecological damages to our global system that need immediate attention.

Postcolonial perspectives are also useful when analysing climate change and how it effects the most vulnerable and impoverished in society because it highlights how western dominance and monopolization through the earth's natural resources has caused the impoverishment of the Global South's limited access to human necessities. The influential literature provided by the leading scholars of this school—Dipesh Chakrabarty and Homi K. Bhabha—is once again important when understanding MENA's fight against the adverse effects of climate change. Bhabha argues that capitalism through industrial development created a subaltern class, defined by Bhabha as "the stateless", "migrant workers, minorities, asylum seekers, [and] refugees", who are "undocumented" beings [3,4]. In addition, the subaltern class become "neither insiders or outsiders" of the international community. This is definitely applicable to the experiences of the climate-displaced people explored in chapter one, who have no legal representation through the 1951 Refugee Convention that does not define a refugee as one who is fleeing unliveable regions. The work conducted by these academics has influenced my interpretation of climate change in the MENA region and has driven my thought of decolonizing climate change through green social capital designed to fit around the demands and needs of MENA.

The work of John Wennersten and Denise Robbins, both respected environmental historians, Rising Tides has been influential in recent climate change and human experience

analysis [5]. The chapter dedicated to MENA's experience with adverse environmental effects provided great direction for further study. The intelligence of connecting the Syrian Crisis to climate change provided a lot of the basis for this dissertation as the situation clearly demonstrates the brutal reality of unliveable regions, water scarcity, conflict, war and persecution. The Arab Spring and Climate Change: A Climate and Security Correlations Series, published by the Center for American Progress and the Climate for Climate Security, has also provided useful journal entries on the relationship between the Syrian Civil War, the Arab Spring, climate change and the case for green capital. The understanding and advocacy for green capital by some authors has provided this review with some groundwork which was initially difficult to find.

We agree that the negative effects of traditional capitalism that massively influenced climate change have created a colonised and unlevel playing field for the people in MENA. Bhabha refers to refugees as a subaltern class and this can be applied to the first chapter in which climate-displaced people suffer because of hierarchical structures [4]. Green social capital can aim to elevate the inequalities that came about with traditional capitalism by ensuring that projects and ideas can be heard from the most vulnerable in society to try and alleviate ecological damages in various regions across MENA.

Since the adoption of the Kyoto Protocol in 1997, the dominant orthodoxy in climate change policy has been the top-down approach through the international obligation of reducing carbon emissions and setting energy targets across borders [6]. Chakrabarty supports the top-down approach of the Report of the Intergovernmental Panel on Climate Change (IPCC) in 2007, stating that if it was not for the institutional organization recognizing the severity of climate change, globalisation would have been the dominant perspective on IR thought in the early twenty-first century [3]. However, Scott Barrett argues that there are no top-down agreements in international climate politics because a "true" top-down architecture presupposes a centralised institution to enforce obligations, which in reality is not the case [7].

4. Discussion

4.1. Climate Change: The Cause of Conflict, Climate-Displaced People and Regional Rivalry in the Middle East and North Africa

Environmental and climate refugees are vulnerable individuals and communities who are forced to flee their homes due to extreme environmental changes that may have developed gradually over time or abruptly emerged [8] (p. 4). Finding refuge from adverse climate change effects targets mostly the world's poorest located in the global south and has displaced millions of people, with a large percent of people forced to leave unliveable regions in MENA [9]. As statistics currently stand it is estimated that ten to twenty percent of current migration from MENA has been caused by climate change, particularly drought and water scarcity and that weather-related disasters across the globe in 2015 forced twice as many people from their homes as conflict and violence [10] (pp. 12–15). Despite the growing numbers of displacement and migration due to climate change in MENA, an area that demands immediate scrutiny remains underexplored with very little critical analysis. Therefore, a coherent framework and terminology on this issue are required to understand the interconnectedness of climate change, water scarcity, poverty, war and violence that ultimately determines individual and community decisions to migrate.

Population increase, a dramatic rise in sea levels and climate change will have significant ramifications for employment and coastal communities that rely on trade, particularly in the coastal cities of Alexandria, Benghazi and Algiers, where sixty percent of the population and ninety percent of businesses are located [10] (p. 24). The World Bank has recognised the seriousness of adverse climate and expects around one hundred million people at risk in coastal cities across MENA by 2030, up from sixty million in 2010 [11]. Care highlights one study that predicts that a sea level rise of 0.3 m would flood thirty per cent of metropolitan Alexandria by 2025, forcing around 545,000 people to migrate with a loss of an estimated 705,000 jobs [10] (p. 24). Subsequently, climate-displaced people

are influenced by the instability of the environment but also by economic, social, political and demographic issues that affect decisions, and it is almost impossible to be sure if one of these concepts is a primary driver in migration or if climate change has single handily aggravated other drivers.

With a global temperature increase of 1.5 C moderate drought is set to affect the region for half a month each year, with heat weaves expected to significantly increase with twenty-five to thirty-three percent of the suffering from unusual heat waves. Even worse, two to five percent of the region is expected to suffer unprecedented heat extremes. Increasing temperatures will have a dramatic effect on how many days these unbearable heatwaves will accelerate for, with Riyadh, Saudi Arabia expected to experience eighty-one days of extreme heat, Tehran, Iran with forty-eight days and Iraq with forty-seven days. Mitigating opportunities must not be ignored because the harsh reality is that those intensifying heat temperatures that may rise by another 0.5 C will create what Care call a "new hostile reality". In MENA, by the summer of 2050 temperatures in some regions will not fall below thirty degrees at night and during the day are projected to reach forty-six degrees [10] (pp. 24–32). By 2100, temperatures could reach to fifty degrees during extreme summer heatwaves, with Pal and Eltahir stating that record-breaking temperatures in Mecca during this period could exceed fifty-five degrees [12]. If the current trends of temperature increase continue without mitigation or adaption conflict and vast numbers of climate-displaced people will be a situation which the international community has unprecedentedly never dealt with before. New ideas are in dire need to be generated to save MENA from the shocking statistics explored above. Entrepreneurial enterprises in renewable energy through the creation of a new green workforce could be a realistic and practical way of addressing climate change and promoting the economy especially for climate-displaced people who were forced to abdicate from their livelihoods and homes.

4.1.1. Terminology Surrounding Climate-Displaced People

Environmental and climate refugees are recognised by the international community including bodies such as the United Nations Refugee Agency (UNHCR), but international law and the 1951 Refugee convention does not provide climate refugees with the same legal protection as refugees who are fleeing their homes as a result of war, persecution or conflict [13]. Individuals and communities who are escaping their country for any other reason, even due to extreme climate and absolute poverty, are referred to as migrants, which Friends of the Earth argue that the term migrant undermines the urgency of any other form of refuge to a "voluntary" level. Furthermore, the term "climate refugee", according to Null and Risi from the Wilson Centre and the Mixed Migration Platform, can be misleading concerning what rights those escaping climate changes have [14] (pp. 4–5).

What appears to be the causes of individuals and communities fleeing vulnerable regions in MENA is a combination of climate, war and persecution, poverty and water scarcity and the term climate refugee does not highlight the extent of the interconnectedness of these issues that frequently attack MENA. However, removing the term "climate refugee", according to Francois Gemenne, de-politicises the reality and experiences of those most vulnerable escaping environmental persecution and that in the past migration has been used as a commodity to victimise climate-displaced people instead of using migration as a progressive adaptation strategy that can be incorporated into environmental policy [15] (pp. 70–71). However, it is difficult to describe many climate-displaced peoples experiences of migration as optimistic and given the documentation of climate-displaced people, incorporating this into policy would be challenging.

Subsequently, this paper will refer to individuals and communities migrating from unliveable regions in MENA as climate-displaced people as the term provides a more precise definition of the seriousness of their displacement and suffering. One factor rarely triggers conflict, violence, war and persecution. However, Schleussner et al. highlight that those adverse outcomes of climate change including drought and water scarcity can exacerbate already heated tensions across vulnerable regions [16] (pp. 9216–9217). Also, the

desertification and rising numbers of dangerous dust storms heighten these tensions further. As a result, the fragile and weak economic and political structure which dominates many of the MENA states may not be able to respond effectively to adverse climate change effects.

4.1.2. Conflict Exacerbated by Climate Change in the Case of the Syrian Conflict

The Syrian Conflict concerning the case for climate change antagonising war and violence is perhaps the most documented event to highlight the severe ramifications environmental damage has in the most vulnerable regions in MENA. John R. Wennersten and Denise Robbins, two of the leading scholars on the relationship between adverse climate change and conflict, have produced an extremely useful book titled Rising Tides that has proved instrumental in exploring this subject area further [5] (p. 157). This section may be reliant on this text but given the very little literature on climate-displaced people particularly in MENA, it has provided excellent research direction to other sources.

Wennersten and Robbins state that despite all the arguments surrounding to what extent climate change causes poverty, conflict, war and persecution, climate change made the world's most significant refugee crisis in recent times in Syria more likely to happen. The international scientific community has acknowledged the links between climate change and hyper urbanisation of climate-displaced people and believes that precipitation changes in Syria are linked to rising sea-level pressure in the Eastern Mediterranean and that there is no apparent natural cause for this increase [17] (p. 3241). Colin P. Kelly et al. highlight their substantial evidence that the 2007–2010 drought in Syria contributed to the conflict in Syria and century-long trends observing trends in precipitation, temperature and sea-level pressure suggest that anthropogenic forcing has increased the probability of similar droughts in MENA [17] (p. 3241). The academics concluded that human influences on the climate system are implicated in the current Syrian conflict.

The scientific analysis between the relationship of migration of climate-displaced people and the civil war is quite shocking and highlights the true extent of human interaction into the climate system which has historically been implemented through western human interaction and has ultimately affected the contemporary human experience in the global south, particularly in MENA, of suffering and violence. Subsequently, scientific observations indicate that desertification and water scarcity in Syria has become "more than twice as likely as a consequence of human interference in the climate system [17] (p. 3241). Wennersten and Robbins put the scientific analysis into a social science perspective by arguing that: "Syria is driving the refugee crisis, and climate change has driven the refugee crisis; it is the clearest scientifically established link yet between climate change and refugees who are fleeing political unrest" [5] (p. 158).

The reality of adverse climate change explored at the beginning of the discussion comes into play when analysing the Syrian conflict and consequently climate-displaced people. The intense drought between 2006 to 2010 damaged Syria's most prosperous land, turning almost sixty percent of the nation into a desert, which made it almost impossible to promote agricultural trade [18]. The drought had a devastating impact on rural farming businesses of which around seventy-five to, in some cases, one hundred percent of farms were affected by crop failure resulting in significant loss of income [19]. The International Food Policy Research Institute through a research project on climatic changes in Syria identified that if current levels of greenhouse gas emissions continue or accelerate, rain-reliant crops in Syria may decline between twenty-nine and fifty-seven per cent from 2010 to 2050 [20].

The loss of virtually any finances forced thousands of individuals, families and communities into extreme poverty with around 1.5 million Syrian people relocating from the unprosperous rural areas to the densely populated urban cities where thousands of Iraqi refugees had been transferred to safety following the conflict [5] (p. 158). The population shock than came about when the climate enforced urbanisation strained food and water resources resulting in higher rates of crime and sectarian violence concerning water drilling,

which became politicised once the Assad government prohibited the digging of wells [17] (p. 3241).

Furthermore, Femia and Werrell highlight that the interconnected concepts and recent evolvements of climatic changes, economics and politics have changed the social contract between the Syrian public and the Assad regime, due to the way the government has ineffectively dealt with hyper migration, urbanisation, violence and persecution [21] (p. 24). The criminal behaviour of the Assad regime against its people has exacerbated the tensions of adverse climate change and has exploited the poorest and most vulnerable in society. The neglection and mismanagement of water and natural resources through inefficient irrigation investment has caused land desertification through both climatic changes and human interference, forcing the exploited communities to drill into sometimes contaminated water supplies and wells [22].

The power of photography brought the seriousness of the situation of climate-displaced people due to the Syrian Conflict to light. The international community and powerful institutions were outraged and shocked by the image of the drowned three-year-old Syrian boy named Aylan Kurdi. The child, along with his family, like four million other Syrians over the past several years, was attempting to flee Syria that was damned by violence and climatic disruption, for a new life in Kos, Greece [19] (pp. 157–158). The first twenty-first-century refugee crisis and instability for climate-displaced people are not unique to the Syrian crisis but extend across the whole of MENA, and the saddening image of Aylan Kurdi is not a one-off unfortunate reality. Climate disruption, rapid urbanisation and population growth because of unliveable regions are what Wennersten and Robbins term a "toxic mix" which has led to 16.7 million refugees being displaced worldwide, with 33.3 million people from the region being internally displaced, creating further security risks [5] (pp. 157–158). The adverse impacts of climate change are indiscriminate and affect mostly the world's most impoverished and refugees, of which half in the MENA region are children.

Syria is not the only nation in MENA that is faced with water scarcity and intense droughts. Tom Bawden, a journalist for the *Independent* newspaper quotes the work of Professor Richard Seager. Seager highlights that climate change is "steadily making the whole eastern Mediterranean and Middle East region even more arid" and that "however the various social, religious and ethnic wars play out . . . the region will feel the stress of declining water resources" [23]. The significant economic players in the region are also faced with the issue. Jeannie Sowers states that policymakers and development agencies use water indices that compare renewable water resources with population statistics to estimate the amount of water accessible per person [24]. By using this type of analysis, the most water-stressed nations that emerge are Bahrain, Qatar, Kuwait, Saudi Arabia and Israel. Sowers highlights that the reality of conditions in these economically prosperous regions are much better than in the nations of Yemen, Jordan and now we can add Syria, which is less water-stressed by using the comparable data explained above but faces minimal access to resources. Ultimately, the Gulf states can vitalise technology and renewable energy through GDP wealth and business investment which is just not an option in other MENA countries [24].

Environmental changes on agriculture in a domestic and global sphere are interconnected with the economy and politics of MENA and as a result, have had severe effects on the political stability in the region when climate change interferes in these areas. Sternberg points out that the top nine global importers of wheat are all based in the MENA region with seven nations resulting in political protests regarding inflations of food prices causing civilian deaths during the Arab Spring [25] (p. 10). On the other hand, two countries that did not experience demonstrations regarding food imports were Israel and the United Arab Emirates who have a high GDP rate and financial security to adapt and level out their economic frameworks.

Johnstone and Mazo highlight that the MENA region is vulnerable to inflation of food imports due to the rising of domestic food prices and average low-level incomes but

that some international leaders such as the President of the World Bank, Robert Zoellick, believe that inflation of wheat was an "aggravating factor" in the riots but not the primary cause [26] (p. 17). The economist Abdolreza Abbassian agrees, stating that the leaders of the Arab uprisings were students and middle-class individuals who were not suffering from food inflation. These arguments may be correct regarding the organisational structure of these protests, but when one observes the images of the riots, the amount of young working-class people comes to light. In Tunisia, protestors were waving baguettes to represent the expense of bread which eventually ousted out the corrupt leader Zine El Abidine Ben Ali, and in Algeria, many young unemployed men protested the inflation of sugar and oil and lack of job opportunities.

Climatic system evolvements whether natural or influenced by human interference will continue to shape political and economic discontents in MENA and if the adverse effects of climate change are not adapted or mitigated through social governance and enterprises, it may have disastrous outcomes for the region. The instability described has already come into play in more recent years with the terrorist organisation ISIS utilising water resources through the seizing of river dams, particularly along the Euphrates River as a weapon of war. ISIS have used water scarcity and desertification as a tool to control communities in rural low-level regions throughout Iraq and Syria as well as monitoring electrical usage by only allowing communities access to the resource for just one hour a day.

The World Bank has recognised that climatic changes causing droughts can contribute to conflict, making the situation even more disastrous and in MENA water scarcity has increasingly become a force in political and economic disputes causing communities to fight over clean water and forcing others to migrate. The ecological changes that the region of MENA faces are challenging and require immediate attention to protect the most impoverished and vulnerable in society. Climate-displaced people is a new yet growing situation, and as explored above, further damages to the environment can make natural resources even more scarce and conflict, war and persecution happen more frequently due to rivalry over human necessities. The experiences of the Syrian Civil War and the Arab Spring highlight the realities of climate change on social, political and economic factors.

4.2. The Case for Renewable Energy, Green Growth and Promoting Economic Diversification in Tackling Adverse Effects of Climate Change in the Middle East and North Africa

The reliance that the states of MENA have on the oil industry is not only causing stagnation and instability of their position in the international economy but is increasing pollution and accelerating the adverse effects of global warming. Both oil-exporting states in the Gulf region and the non-oil exporting nations of MENA urgently need to diversify their economies to ensure that their financial frameworks can survive the booms and busts of the global market as well committing themselves to renewable energy innovations with the aim of tackling climate change. The positive effects of investing in green energy and promoting green growth have the potential for the nations of MENA to tap into a growing market, boost their economies through job growth creation and international trade, ultimately providing the opportunity to become world leaders in renewable energy, leading the way for others to follow.

Green social capital is the economic framework that is driving the transition of energy use in MENA. Opponents to green growth who favour "bottom-up" movement will be challenged with the complex changes that must be made between governments in MENA and the private sector, as well as the impact of turning to renewable energy on the international community that relies heavily on MENA oil reserves. Structural changes between the financial and organisational roles of both the public and private sector need to collaborate positively to completely utilise an attempt to popularise the use of renewable energy rather than the heavy reliance on oil which has become the curse of the political economy of the Middle East.

We argue that the international community must decolonise the adverse effects of climate change in which the most impoverished societies are almost always experiencing the

most extreme ecological changes. Decolonising climate change is a process that also needs to occur in MENA through the removal of promoting oil exportation and reducing western business influence in utilising "dirty" energy. Traditional industrial capitalism that emerged in the late nineteenth and early twentieth century saw the exploitation and monopolisation of the world's natural resources, prohibiting poorer nations from accessing a method for development. Subsequently, the second Industrial Revolution in Europe witnessed the use of fossil fuels to boost western economies and production on an unprecedented level, leaving behind less economically developed regions [27] (p. 45). However, the structure of green social capitalism will be much more inclusive and representative in comparison to traditional capitalism because it includes the voices of those who have been colonised by western businesses dominance over natural resources.

Green social capitalism will enable a diverse audience in MENA to become involved in the changes that need to happen in the region to ensure economic stability and tackle climate change. Profit from renewable energy will be a natural result of investment through innovation. The idea of profit to traditional socialists may sound like an exploitative idea, but in this situation where urgent action needs to happen to help the adverse effects of climate change in MENA, profit from productive ideas and enterprises can be redistributed back into the businesses for the creation of further inventions. The cycle of profiting through investment and then redistribution profit will help to strengthen and quicken up the process of installing renewable energy that is needed urgently for the people of MENA who are suffering from desertification, lack of precipitation and extreme heat waves. Private and public investment into the new sector will help to drive away from the traditional reliance on oil-exportation that damages the environment and stagnates the economy.

4.2.1. Why the Traditional "Bottom-Up" Approach Will Not Work in MENA

The traditional "bottom-up" approach supports the implementation of climate policy from the local level and regional planning organisations. Nevertheless, bottom-up approaches do not prohibit non-local level planning but if decisions can be made at a local, city, provincial or single-nation level, it makes sense to do so as the bottom-up approach places public opinion and needs at the heart of debates. Since the adoption of the Kyoto Protocol in 1997, the dominant orthodoxy in climate change policy has been the top-down approach through the international obligation of reducing carbon emissions and setting energy targets across borders [6] (p. 616). However, Barret argues there are no top-down agreements in international climate politics because a "true" top-down architecture presupposes a centralised institution to enforce obligations, which in reality is not the case [7] (p. 30). The traditional orthodoxy bottom-up approach abandons the ideological belief of a universal liberal framework leading the way for climate change policies and commitments [6] (p. 617).

Steve Rayner, one of the leading academics of climate policy at Oxford University, argues that the top-down approach proves to be ineffective in adequately and efficiently targeting climate change issues because supporters of this approach have overestimated the priority of climate change on global leaders' political agendas, with topics such as the economy and welfare taking centre stage. Rayner highlights that the top-down method focuses most of its attention on emission controls which is good for tackling climate change but ignores alternative ideas such as adaption and supporting a localised idea and local environmental NGO's [6] (p. 616). Rayner is correct regarding political leaders limited commitment to global institutional values such as President Trump's rejection of the Paris Climate Agreement and perhaps a bottom-up approach can be helpful in some areas.

Applying ideological and theoretical methods to MENA's fight against the adverse effects of climate change is challenging yet helpful in creating strategic environmental plans. Taking the definitions of both the traditional bottom-up and top-down approaches, we believe that the collaboration between green social capital enterprises emerging in MENA and creating innovative inventions that present the needs of the most vulnerable of society while protecting the natural resources of climate change such as water and clean air is a new

way of approaching environmental adaption. A new framework is needed to understand the complexities of climate change in MENA that experiences changes in the ecological system differently to other regions in the world due to its heavy reliance on oil, extreme weather conditions, high migration levels, and occurring conflict, war and persecution. Also, according to Al Mubarak and Alam, the Living Planet Report of 2010 stated that UAE, Qatar and Kuwait were three of the top ten countries in the world for unsustainable high levels of consuming natural resources [28] (p. 9).

Therefore, MENA needs a modified framework that is modernised from the traditional perspectives to address these issues urgently. The decolonisation of climate change through green social capitalism works because enterprises and the public can create innovative ideas to tackle climate change in a combination of localised planning and top-down structural framework through investment and design. We will further explore current innovations in MENA through green social capitalist enterprises that serve through socially democratic means through a combination of a bottom-up and top-down approach, in which the latter will help to provide structure and frameworks and the former will provide ideas and stimulate the green economy in MENA.

4.2.2. The Demand for Green Growth

The urgency for environmental action and the demand for employment, democracy and civil liberties through the Arab Spring has created significant economic tests in MENA. David Michel and Mona Yacoubian highlight that the nations in MENA must produce tens of millions of job opportunities over the next decade to meet the demands of the young revolutionary growing labour force [29] (p. 41). However, it is crucial that the economic developments in the region go hand-in-hand with the adaptation process needed to combat water scarcity, food security and increasing urbanisation. If the economies of MENA do not produce a coherent economic plan with climate change in mind, productivity, public health, people's livelihoods and welfare for citizens will be under threat [30].

The growing market of a green enterprise can help to elevate some of these concerns through the creation of new employment sectors while tackling the complicated issues that emerge with the changing ecological system of the region. Green finance through financial products and services such as bonds in green projects, loans and insurance can provide public-welling and social equity. Hallegatte states that global interest in green energy finance is increasing rapidly, for example, in 2015, investments in green energy reached an all-time high of $298 billion [31]. Also, green-growth policies and capital can help to make the process of economic growth more environmentally friendly without slowing the process down [31]. Nevertheless, green finance must take into consideration the realities and experiences of developing economies in MENA. Ban-Ki Moon, the UN Secretary-General, stated that global investments in green energy need to increase from roughly $400 billion at present to $1–1.25 trillion, out of which $40–100 billion annually is required to achieve universal electricity [30]. Forbes identifies that these figures leave developing economies like nations in MENA in a difficult situation as some regions are facing hardships concerning infrastructure, clean water and energy; however, green energy is expected to fill this gap by aligning financial systems with the monetary needs required to support a sustainable, low-carbon economy [29] (p. 48).

4.2.3. Innovative Renewable Energy Projects: The Case of Masdar City in UAE

Renewable energy projects evolving in MENA have the potential to synergise economic growth and improvements in the ecological system. Ibrahim El-Husseini et al. highlight that the geographical location and climate of MENA hold the world's most significant potential for solar power production and wind energy potential [32] (pp. 1–2). However, during our academic research in renewable energy projects that are underway, there only appears to be a very select amount of documentation analysing the processes of policy into practice.

Therefore, we will attempt to provide an overview of innovative projects that are underway in the MENA region and what potential they have for economic growth and environmental change, as well as what has already been achieved. Masdar City is an eco-city project that is situated in Abu Dhabi, UAE and aims to generate energy purely from renewable resources and is aiming to pave the way for future eco-cities to emerge. In 2008, Masdar City "broke ground and embarked on a daring journey to develop the world's most sustainable eco-city" through smart investments to pioneer a "greenprint" for how cities can accommodate rapid urbanisation through environmental sustainability. The eco-city incorporates ancient Arabic architectural techniques with modern technology by capturing winds through scientific innovations to cool the hot summers and to utilise the high levels of sunlight to generate energy from rooftop solar technology [33].

Another beneficial factor to the eco-city is the Masdar Institute of Science and Technology, situated in the city and dedicated to finding "cutting-edge solutions in the fields of energy", with businesses collaborating with the institute to spark economic growth and generate green ideas. Masdar City is aiming to add new businesses, schools, leisure activities and homes, with the hope of 40,000 people living in Masdar City with an additional 50,000 commuting for work and educational purposes once the eco-city is fully complete. These statistics may be slightly ambitious, but the groundwork is there, and if profit can be generated from green social capital then there is a possibility of aiming towards these figures [33].

According to the executive board, Masdar City is the regional leader and a major international player in the sustainable urban development and is a UAE-headquartered company that has been advancing the development, commercialisation and deployment of cutting-edge solutions in the industry for over a decade. Furthermore, Masdar City is wholly owned by the Abu Dhabi Government's Mubadala Investment Company, focusing on a knowledge-based economy and seeking to be a model of sustainability for other companies and regions in the wider Middle East [33].

The collaboration of private and public sector is evident in the Masdar City project of which public and private funding, enterprise and ideas are generated to adopt the needs of the region and broader international climate community. Masdar Clean Energy as a company is the Middle East's largest exporter of renewable energy and is a leading developer of utility-scale, grid-tied projects and small-scale applications providing energy access to communities without or far away from electricity supply. Within the UAE, projects have included the 100-megawatt Shams 1 solar power project with a total size that stretches over more than 2.5 square kilometres in western Abu Dhabi, Masdar City's 10-megawatt solar photovoltaic plant in Abu Dhabi, and carbon capture and sequestration projects that stimulate the economy while reducing industrial carbon emissions [34].

The collaboration of new bottom-up localised and top-down structural approaches through Masdar's projects helps to show some of the successes the new social green capital method has in MENA. Masdar's work in rural villages like Camp Robinson within the Helmand Province of southern Afghanistan helped to install solar home systems enhancing the lives of more than three thousand people who had no access to electricity [35]. Masdar's webpage states that the project established solar home systems in five hundred and forty-five houses, and fifty-five public spaces including schools, mosques and clinics, in which the photovoltaic panels and battery storage powered essential appliances such as refrigerators, televisions, fans and lights.

Furthermore, engineers from Masdar trained users on how to operate and maintain their solar systems, helping to ensure that the projects are utilised and optimised to the best of their ability [35]. The renewable element of energy via solar and light through green social capital has highlighted the success of what can occur when private and public sectors collaborate through economically innovative green projects.

Despite the crucial and ground-breaking much-needed research conducted by Masdar City, the eco-city has come under scrutiny for its capitalist ideological implications on the projects. Federico Cugurullo argues that new eco-cities like Masdar City are shaped in loci

by policy agendas tailored around specific economic and political targets and that Masdar City is a result of local plans seeking financial growth via urbanisation to preserve the political institutions of Abu Dhabi [36] (p. 2417). Furthermore, Cugurullo believes that Masdar City was designed to capitalise on sustainability by building a public platform to commercialise clean-tech products and that the "alleged eco-city" is an example of urban eco-modernisation as a high-tech urban development informed by market analysis rather than ecological studies [36] (p. 2417).

The profoundly pessimistic view brought forward by Cugurullo can offer some insightful analysis. The theory of relationalism has emerged in the twenty-first century through the social sciences and focuses on the idea of space that is open, unfixed and continuously in the process of being. Relationalism ensures that the area stops being categorised according to bounded hierarchies and instead is stretched beyond pre-given political boundaries by heterogenous flows of material such as ideas, capital and individuals [36] (p. 2420). Subsequently, in the eyes of Cugurullo, the relationship between relationalism and eco-cities such as Masdar concentrates upon space becoming politicised and monetarised through policy agendas which apply the article of ecological modernisation. Additionally, Cugurullo believes that the Gulf States, particularly Abu Dhabi, are drilling into the energy market as a result of interconnected concepts including natural resources depletion, in which the oil market is declining in the region and is seeking new suppliers, population growth, climate change and the Arab Spring [36] (pp. 2422–2423).

However, a coherent, financed and innovative plan is urgently needed in MENA to help tackle the adverse effects of climate change and if green social capital is the way forward than it should be encouraged. It is correct to say that environment can be part of a political agenda, but it needs to be a priority on political leaders lists because as time continues, the ecological damages are worsening and affecting the most impoverished in MENA. Also, the oil market does create instability in MENA, and the Arab Spring has seen an evolvement of a new atmosphere in public demands for democracy, civil liberties and gender equity. Subsequently, if ecological enterprises can provide infrastructure, knowledge, equality and science to the regions that need it most, then undoubtedly green social capital can be decisive in improving the quality of people's lives.

4.2.4. Ecological Policy Making: The Case of Vision 2030

The governments across the MENA region have attempted to incorporate environmental factors and strategic planning in their departmental government centres, particularly in the Gulf States. The coherent progressive changes in policy highlight the region's obligation and dedication to ensuring green growth through sustainable environmental projects to reduce the region's carbon footprint. The Vision 2030 policy documented by the government of Saudi Arabia aims to privatise the public sector to strengthen the quality of services, reducing government spending and taking into consideration the interest of citizens [37]. This is good news for the renewable energy sector which, as explored above, needs substantial funding to drive the market forward with the aim of constructing renewable and sustainable energy resources. Abu Dhabi has also implemented their own adapted version of Vision 2030 in which privatisation investment and environmental research will be high on the agenda.

Environment Vision 2030 published by the Abu Dhabi government identifies the five areas of the environment which deserve immediate attention, for example, the electrical consumption per household is ten times higher than the world average and fish stocks are currently at less than twenty per cent of their 1978 levels, with the population of species such as Hammour at unstainable levels [38]. Through sustainable environmental action, the country aims to revitalise their natural resources and replace old technologies with green infrastructure. Once again, Cugurullo states that the Vision 2030 policies emerging across the Gulf states are symbolic of the same echoes attached to ecological modernisation with the concentration placed upon urban economic growth [36] (p. 2425). In contrast, we believe that the Vision 2030s policies do incorporate social green capital policies within,

but this positively contributes to the Gulf obligation of reducing their carbon footprint in line with the Paris agreement while diversifying their economies through protecting their ecological system.

Economic diversification through green social capital can have positive effects in MENA where there is a significant demand for job opportunities. Green social projects conducted by companies such as Masdar have provided ground-breaking renewable services in the Middle East and across the international community. By no means is green social capital perfect in both definition and practice as is clear from critic's perceptions, but we believe that at least for now, green growth through social innovation is the only way that the region is going to tackle climate change and stimulate economic growth.

5. Conclusions

Green social capital has moulded the framework of this article by exploring the positive effects of this concept in the MENA region. Green social capital works in MENA because the region must diversify its economy to face the challenging situations that face the region in the twenty-first century, including population growth, high levels of unemployment, climate-displaced people and rapid urbanisation, as well as tackling conflict, war and persecution.

The outcome of understanding the relationship between climate-displaced people, conflict exacerbated by ecological changes and regional rivalry helps to display the crisis level that the region is presented with. Nations across MENA need support in producing an infrastructure that can accommodate human necessities such as energy, as well as preserve water and food. The statistical data concerning environmental changes in MENA highlight the seriousness of this topic, and if a coherent, financed plan is not implemented soon, increases in temperature, sea levels and desertification can heighten and even produce more frequent conflicts. The analysis covering the Syrian conflict, the Arab Spring and climate change provides the international community with a critical insight into the situations that climate-displaced and innocent people face.

Decolonising climate change through environmentally-focused economic growth gives MENA an identity and opportunity to discover and produce world-leading renewable energy programmes. The work conducted by Masdar City has created a portfolio to how green businesses can provide urgently needed infrastructure to regions across MENA, seen with the production and implementation of solar panels to conduct energy in rural villages of Afghanistan. The Masdar Company (Abu Dhabi, United Arab Emirates) may appear to be incredibly ambitious in some areas, and one must take into consideration the reality of some of the ideas explored, but promoting innovative and exciting ideas is indeed not a bad thing in a new market that is addressing global problems.

Overall, green social capital can diversify and stimulate the international political economy of the Middle East and North Africa while tackling the adverse effects of climate change by providing a new market that will address ecological changes in the region. Sustainable development through green growth identifies areas of potential efficiency in energy usage and deploys these services to the areas that need it the most. The old dependency of the oil market is becoming a concept of the past due to the growing unpopularity of dirty energy and exploitation of natural resources, and the twenty-first century is making way for the rise of green social capital as the most viable way of adapting to climate change.

Author Contributions: Conceptualization, J.O.; methodology, M.I.S.S. and J.O.; formal analysis, M.I.S.S. and J.O.; resources, M.I.S.S. and J.O.; writing—original draft preparation, J.O.; writing—review and editing, M.I.S.S.; project administration, M.I.S.S.; funding acquisition, M.I.S.S. All authors have read and agreed to the published version of the manuscript.

Funding: The research was funded by the National University of Malaysia via the Early Career Encouragement Grant Scheme, grant number GGPM 2020-042.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Acknowledgments: We would like to thank the external editor and anonymous referees for their valuable suggestions to improve the paper.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Halliday, F. *The Middle East in International Relations. Power, Politics and Ideology*; Cambridge University Press: Cambridge, UK, 2005; p. 263.
2. Richards, A.; Waterbury, J.; Cammett, M.; Diwan, I. *A Political Economy of the Middle East*, 3rd ed.; Westview Press: Boulder, AL, USA, 2013.
3. Chakrabarty, D. Postcolonial Studies and the Challenge of Climate Change. *New Lit. Hist.* **2012**, *43*, 1–18. [CrossRef]
4. Bhabha, H. Notes on Globalization and Ambivalence. In *Cultural Politics in a Global Age: Uncertainty, Solidarity and Innovation*; David, H., Henrietta, L.M., Kevin, Y., Eds.; One World: Oxford, UK, 2008.
5. Wennersten, J.R.; Robbins, D. *Rising Tides: Climate Refugees in the Twenty-First Century*; Indiana University Press: Bloomington, IN, USA, 2017.
6. Rayner, S. How to Eat an Elephant: A Bottom-Up Approach to Climate Policy. *Clim. Policy* **2010**, *10*, 615–621. [CrossRef]
7. Barret, S. Credible Commitments, Focal Points and Tipping. In *Climate Change and Common Sense. Essay in Honour of Thomas Schelling*; Hahn, R.W., Ulph, A., Eds.; Oxford University Press: Oxford, UK, 2012; pp. 29–49.
8. Boano, C.; Morris, T.; Zetter, R. *Environmentally Displaced People: Understanding the Linkages Between Environmental Change, Livelihoods and Forced Migrations*; Refugee Studies Centre: Oxford, UK, 2008.
9. Friends of the Earth. Climate Refugees. Available online: https://friendsoftheearth.uk/climate/climate-refugees (accessed on 13 January 2021).
10. Care Danmark. Fleeing Climate Change. Impacts on Migration and Displacement. Available online: https://careclimatechange.org/wp-content/uploads/2016/11/FleeingClimateChange_report.pdf (accessed on 31 September 2021).
11. World Bank Group. Turn down the Heat: Confronting the New Climate Normal. pp. 116–117. Available online: https://openknowledge.worldbank.org/handle/10986/20595 (accessed on 13 January 2021).
12. Pal, J.S.; Eltahir, E.A.B. Future Temperature in Southwest Asia Project to Exceed a Threshold for Human Adaptability. *Nat. Clim. Chang.* **2016**, *6*, 197–200. [CrossRef]
13. UNHCR. The 1951 Refugee Convention. Available online: http://www.unhcr.org/1951-refugee-convention.html (accessed on 15 August 2021).
14. Null, S.; Risi, L.H. *Navigating Complexity: Climate, Migration and Conflict in a Changing World*; The Wilson Centre: Washington, DC, USA, 2016.
15. Gemenne, F. One Good Reason to Speak of Climate Refugees. *Forced Migr. Rev.* **2015**, *49*, 70–71.
16. Schleussner, C.; Dongesa, J.F.; Donnera, R.V.; Schellnhuber, H.J. Armed-Conflict Risks Enchanced by Climate-Related Disasters in Ethnically Fractionalised Countries. *Proc. Natl. Acad. Sci. USA* **2016**, *113*, 9216–9221. [CrossRef] [PubMed]
17. Kelley, C.P.; Mohtadi, S.; Cane, M.A.; Seager, R.; Kushnir, Y. Climate Change in the Fertile Crescent and Implications of the Recent Syrian Drought. *Proc. Natl. Acad. Sci. USA* **2015**, *112*, 3241–3246. [CrossRef] [PubMed]
18. NPR Staff. How Could A Drought Spark A Civil War? NPR Special Series The U.S Response to Syria, 8 September 2013. Available online: https://www.npr.org/2013/09/08/220438728/how-could-a-drought-spark-a-civil-war?t=1642512770850 (accessed on 31 May 2020).
19. Polk, W.R.; Fallows, J. Your Labour Day Syria Reader, Part 2, The Atlantic, 2 September 2013. Available online: https://www.theatlantic.com/international/archive/2013/09/your-labor-day-syria-reader-part-2-william-polk/279255/ (accessed on 18 January 2022).
20. Breisinger, C.; Zhu, T.; Al Riffai, P.; Nelson, G.; Robertson, R.; Funes, J.; Verner, D. *Global and Local Economic Impacts of Climate Change in Syria and Options for Adaptation*; International Food Research Institute: Washington, DC, USA, 2011.
21. Femia, F.; Werrell, C.E. (Eds.) Climate Change Before and After the Arab Awakening: The Cases of Syria and Libya. In *The Arab Spring and Climate Change*; A Climate and Security Correlations Series; Centre for American Progress, The Centre for Climate and Security: Washington, DC, USA, 2013.
22. IRIN News. Syria: Why the Water Shortages? The New Humanitarian, 25 March 2010. Available online: http://www.irinnews.org/Report/88554/SYRIA-Why-the-water-shortages (accessed on 13 July 2021).
23. Bawden, T. Refugee Crisis: Is Climate Change Affecting Mass Migration? Independent, 7 September 2015. Available online: http://www.independent.co.uk/news/world/refugee-crisis-is-climate-change-affecting-mass-migration-10490434.html (accessed on 19 August 2018).
24. Sowers, J. Water, Energy and Human Security in the Middle East. Middle East Report 271 (Summer). 2014. Available online: https://merip.org/2014/07/water-energy-and-human-insecurity-in-the-middle-east/ (accessed on 22 June 2020).

25. Sternberg, T. Chinese Drought, Wheat, and the Egyptian Uprising: How a Localized Hazard Became Globalized. In *The Arab Spring and Climate Change*; A Climate and Security Correlations Series; Werrel, C.E., Femia, F., Eds.; Centre for American Progress: Washington, DC, USA, 2013; pp. 7–14.
26. Johnstone, S.; Mazo, J. Global Warming and the Arab Spring. In *The Arab Spring and Climate Change*; A Climate and Security Correlations Series; Werrel, C.E., Femia, F., Eds.; Centre for American Progress: Washington, DC, USA, 2013; pp. 15–24.
27. Vanderheiden, S. *Atmospheric Justice: A Political Theory of Climate Change*; Oxford University Press: Oxford, UK, 2008.
28. Al Mubarak, R.; Alam, T. The Roles of NGOs in Tackling Environment Issues. Middle East Institute Viewpoints. 2012. Available online: https://www.mei.edu/publications/role-ngos-tackling-environmental-issues (accessed on 13 June 2021).
29. Michel, D.; Yacoubian, M. Sustaining the Spring: Economic Challenges, Environmental Risks, and Green Growth. In *The Arab Spring and Climate Change*; A Climate and Security Correlations Series; Werrel, C.E., Femia, F., Eds.; Centre for American Progress: Washington, DC, USA, 2013; pp. 41–50.
30. Forbes Middle East. The Growth of Green Finance. 2018. Available online: https://www.forbesmiddleeast.com/en/the-growth-of-green-finance/ (accessed on 22 August 2018).
31. Hallegatte, S.; Heal, G.; Fay, M.; Treguer, D. *From Growth to Green Growth: A Framework*; Working Paper 17841; National Bureau of Economic Research: Cambridge, MA, USA, 2012; pp. 1–38.
32. El Sayed, T.; El-Husseini, I.; Aly, K.; Zywietz, D.; Fayad, W. A New Source of Power: The Potential for Renewable Energy in the MENA Region. Booz and Company. 2009. Available online: http://large.stanford.edu/courses/2012/ph240/aljamaan2/docs/A_New_Source_of_Power-FINAL.pdf (accessed on 13 January 2022).
33. Masdar A Mubadala Company. About Masdar City. Available online: https://masdar.ae/About-Us/Management/About-Masdar (accessed on 22 August 2020).
34. Masdar A Mubadala Company. About Masdar: Deploying Renewable Energy Projects and Realizing Low-Carbon Urban Development. Available online: https://masdar.ae/en/About-Us/Management/About-Masdar (accessed on 22 August 2020).
35. Masdar A Mubadala Company. Solar Home Systems in Afghanistan. Available online: https://masdar.ae/Masdar-Clean-Energy/Projects/Solar-Home-Systems (accessed on 22 August 2020).
36. Cugurullo, F. Urban eco-modernisation and the policy context of new eco-city projects: Where Masdar City fails and why. *Urban Stud.* **2016**, *53*, 2417–2433. [CrossRef]
37. Vision 2030. Privatisation Programme, Vision 2030 Kingdom of Saudi Arabia. Available online: https://www.vision2030.gov.sa/v2030/vrps/privatization/ (accessed on 23 April 2021).
38. The Government of UAE Official Portal. Environment Vision 2030 (Abu Dhabi). Available online: https://u.ae/en/about-the-uae/strategies-initiatives-and-awards/local-governments-strategies-and-plans/environment-vision-2030-abu-dhabi (accessed on 13 December 2021).