# CLIMATE POLICY ADOPTION IN THE MENA REGION: INSIGHTS FROM MOROCCO AND JORDAN

By

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## Abstract

This thesis examines the critical mechanisms behind the climate policy adoption in the Middle East and North Africa (MENA) region, an area highly vulnerable to the impacts of climate change. The study focuses on the factors influencing climate policy adoption, specifically by exploring the role of resource scarcity, governance, and regional dynamics. Through a comprehensive literature review, media content analysis, and interviews, the research sheds light on challenges and opportunities for climate policy adoption in the MENA region. The study highlights the region's vulnerabilities, including meager resources, weak resource management and regional dynamics. This research contributes to the academic understanding of the climate policy adoption in the MENA region and its policy implications for climate security.

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## List of Abbreviations

ACC	Agricultural Credit Corporation
EU	European Union
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
FER	Fixed Effect Regression
GCC	Gulf Cooperation Council
GCMs	General Circulation Models
GDP	Gross Domestic Product
GIZ	German Development Agency
GME	Maghreb-Europe Gas Pipeline
IWMI	International Water Management Institute
JRP	Jordan Response Plan
JVA	Jordan Valley Authority
LDN	Land Degradation Neutrality
MENA	Middle East and North Africa
MoU	Memorandum of Understanding
MWI	Ministry of Water and Irrigation
NAP	National Adaption Plan
NDC	National Deterministic Contribution
NSDS	National Sustainable Development Strategy
OECD	Organization for Economic Co-operation and Development
PNE	National Water Plan
SOE	State-Owned Enterprises

- **UAE** United Arab Emirates
- **UFM** Union for the Mediterranean
- UN United Nations
- **USAID** United States Agency for International Development
- WAJ Water Authority of Jordan
- WEF Water-Energy-Food
- WEFE Water-Energy-Food-Ecosystem
- **WPI** Water Poverty Index

## Introduction

The Middle East and North Africa (MENA) is often known as the "cradle of civilization". Today, the MENA region represents one of the most vulnerable regions to the impacts of climate change. According to the World Bank, 60% of people in the MENA region live in highly or extremely water-stressed areas, generating 70% of the region's Gross Domestic Product (GDP). This crisis is followed by stark projections that in a scenario with a 4-degree Celsius temperature, MENA will experience a 75% drop in freshwater availability (2022). Climate change is not only an environmental issue but a threat multiplier for the region's security, economy and human well-being (Figure 1). The MENA region already started experiencing the effects of climate change during the late 20<sup>th</sup> century, with devastating droughts and heat waves and increasing water scarcity. These impacts affect the region's agricultural sector, which serves as one of the leading drivers of the economy. Agriculture is highly susceptible to the effects of climate change as it is heavily rainfed and one of the biggest water consumers. Hence, water availability is starting to represent the primary national concern.

Additionally, socio-economic factors, such as unemployment, migrations and lack of water management practices, put additional strain on the region's resources. These consequences are far-reaching and troubling for national security. Rising temperatures, aridity, and uneven precipitation are expected to worsen water and food security, leading to increased displacement and conflicts. The MENA region is already fragile and conflict-prone, which makes it ill-equipped to handle climate-related shocks. Thus, policymakers must take immediate action to tackle the issues. Despite the urgency and internal problems such as massive migration, unemployment and reduced agricultural activities, immediate geopolitical concerns often disrupt long-term visions for these countries. The MENA region is the most

conflict-affected area in the world. Moreover, the majority of MENA countries share scant resources with their neighbors. This includes aquifers, lakes, rivers and even seas.

The discrepancy of powers between oil-rich and non-oil countries also blurs this vision. Oil-rich countries often entail the "resource curse", meaning they do not utilize abundant resources like oil. They usually have higher levels of corruption and political instability due to the concentration of power among the oil elite and clientelist policies. However, this is not different for non-oil countries. Non-oil countries are trying to find their own "oil" to increase their political power and mitigate the risk of already scant resources. In this context, resource scarcity represents political opportunities to consolidate the power over the resources, even those essential for human life, such as water and food.



Figure 1. Climate change is a threat multiplier in the MENA region. The World Bank. "Middle East and North Africa climate roadmap (2021-2025): Driving transformational climate action and green recovery in MENA". Accessed 21 May 2024. https://www.preventionweb.net/publication/middle-east-and-north-africa-climate-roadmap-2021-2025-driving-transformational-climate.

What makes climate policies desirable is that they benefit both the state and the economy. This research explores incentives that drive climate policy adoption in countries entailing high climate and socioeconomic risk, explicitly focusing on non-oil countries like

Morocco and Jordan. Climate policy adoption refers to the policies oriented toward mitigating climate change and include water, food and energy. This is important for several reasons. First, there is notable progress in the region's ambition and policy imperative to address the resource scarcity. However, to what extent might resource availability drive the climate policies, and what are the implications for the policy landscape? What are some challenges and opportunities? Second, the MENA region faces significant policy challenges regarding the considerable gap between commitment and action. From the political economy perspective, what incentives drive the state to adopt climate policies? Why is there increasing adoption of national projects and laws despite the lack of implementation? Who are the main stakeholders and the interest groups who participate in resource distribution? Finally, the global climate discourse is a valuable opportunity for the MENA region to facilitate regional cooperation and reduce conflicts. This cooperation can also bridge the gap between the oil-rich countries and non-oil areas in terms of each country's potential. In contrast, climate change can contribute to the existing conflicts and exacerbate massive human displacement and resource security.

The contribution of this research is twofold. First, it contributes to the academic literature on climate policies by adding nuanced incentives that drive the policy landscape in the conflict-prone region. Second, it serves as a practical tool for policymakers and stakeholders who are at the forefront of climate action. There is a novelty in researching the incentives behind climate policies as they usually are not all-encompassing. The literature strand for climate policies is generally divided into practical considerations that combine data, suggestions and implementation processes or theoretical considerations, which point out the gap between adoption and implementation. Therefore, by researching the mechanisms behind climate policy adoption, we can get a nuanced view of the key drivers of policy changes and the possible explanation for why implementation is lacking in the region.

Researching the interlinkage of resources, governance, and regional dynamics opens new avenues for understanding the complexities of policy mechanisms, especially in the region where the political system differs from the rest and is often facilitated by a handful of statesmen. Understanding how countries impacted by the ongoing crisis respond to climate shocks is crucial, considering that the MENA region will be the most hit by climate change. MENA also presents the main bridge between Europe and Africa, where North-South cooperation has the prospect of enhancing knowledge transfer, expertise, and education on how to produce and consume sustainably. Finally, this research should demonstrate how the incoming crisis can also present a chance to alleviate one of the most conflict-prone regions in the world and focus on the opportunities ahead.

This thesis begins with a literature review that explains the situation of resources, political economy, and regional dynamics in the MENA region. This is followed by the case selection and hypothesis focusing on Morocco and Jordan. In Chapter 2, I explain the research design, which includes the explanation for the research method and data collection. In Chapter 3, I present a brief overview of the historical background of Morocco and Jordan and the research findings that stem from content media analysis and interviews. Then, I finish with policy implications.

## **1. Theoretical Framework**

In this chapter, I explore the definitions of water scarcity, food security, and energy. This is followed by a literature review on how resource availability, political governance, and regional dynamics play significant roles in the policy sphere. Based on the literature, I present an explanation for the case selection of Morocco and Jordan, followed by the proposed hypotheses.

#### **1.1 Definition**

The Middle East and North Africa (MENA) region stands at the junction of complex socio-economic and environmental issues, where intertwined issues of water scarcity and food security increase significantly. Arid climates, increasing population and geopolitical tensions bring an additional layer of problems to the existing issues of resource scarcity and climate security. Climate security represents the drastic impacts of climate change on the peace and security in the region, coming usually from a lack of resources, such as water and food. In this paper, water scarcity and food security play a pivotal role in analyzing the dynamics between the resources and policy adoption, which becomes imperative for sustainable development and climate resilience. However, it is important to note that in the context of resources, the terms "scarcity" and "availability" are used interchangeably in this paper.

According to the Food and Agriculture Organization (FAO) definition, water scarcity manifests in various dimensions, each presenting distinct challenges. The first refers to the scarcity of acceptable freshwater quality relative to aggregated demand, causing water shortage. The second emerges mainly due to institutional failures, causing insufficient access to water services. Lastly, water scarcity may be an issue due to poor infrastructure, regardless of water resource abundance. The last case usually refers to the countries with adequate resources who struggle to harness their capacity due to inadequate infrastructure and management. In the context of the MENA region, the scarcity of available freshwater relative to the demand is the primary and critical challenge. Currently, there are numerous ways to measure water scarcity. Among the most notable is the Water Poverty Index (WPI), a mathematical data-driven tool for measuring water-related poverty on various levels (Cho and Ogwang 2014, 7003). As the Global Water Forum outlines, other indicators include the Falkenmark indicator or the Water Stress Index. This method describes water scarcity as the absolute water resources available to a region's population. The International Water Management Institute (IWMI) developed a third measure of water scarcity. This method focuses mainly on the consumption of water and adaption capacities that can be used to improve infrastructure (Global Water Forum 2012). On the other hand, based on the 1996 World Food Summit, food security is defined as when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO 1996). In contrast to water scarcity measurements, which mostly rely on indices, data analysis of 78 articles by Manikas shows that the experience-based (40%) indicators are one of the most used measurements for food security (Manikas 17, 2022). As we will see in the subsequent chapter, there is an inevitable link between water, food, and energy in the MENA region. Hence, as the European Commission defines, the Water-Energy-Food-Ecosystem (WEFE) Nexus signals the interlinkages of water, energy, food security and ecosystems - which is becoming the foundation for climate security. The most notable measurement has been the Water-Energy-Food Nexus Index, a national-level composite indicator founded on 21 relevant indicators (The Nexus Resources Platform 2022). The WEF nexus plays a vital role in the MENA region due to the increasing energy need to combat resource scarcity. As climate change affects all sectors simultaneously, adoption requires cross-sectoral coordination that involves water, energy and food to increase security and resilience. Figure 1 shows the different ratios of water, food and energy and how they constitute the nexus. For instance, Morocco and Jordan are similar when it comes to energy and water but relatively different in terms of food. In this case, where two countries have similar issues, different prioritization of climate policies can lead to different outcomes. Thus, the interplay between water scarcity, food security and energy potential can significantly influence policy adoption. Simultaneously, other factors are involved, such as governance coordination and geopolitics, which I will explore in the subsequent chapter.



Figure 2. "WEF Index in the MENA Region 2023." WEF Nexus Index. Accessed 17 May 2024. https://wefnexusindex.org.

In this paper, I focus on operationalizing the policy adoption within the MENA region, examining its causal mechanisms through the role of resources, political economy and regional dynamics. This research aims to highlight intricate factors that drive policy change in a region at the forefront of resource scarcity and climate insecurity. A multi-dimensional approach is adopted to operationalize policy adoption, incorporating content media analysis, examination of national laws and reports and conducting interviews. The temporal scope is to capture significant elements that influence policy shifts in the context of the looming crisis, covering a spectrum of mechanisms and incentives behind the initial climate policy adoption. To get a sound overview of a policy landscape, I analyze factors including socioeconomic elements (such as resources and migrations), political aspects (the roles of monarchy and stakeholders), and geopolitical dynamics (regional interactions) and their impact on climate policies. I explored the policies encompassing water, food and energy in the last five years (2024-2019) as they provide a fresh perspective on the current issues driving policy changes in these countries.

#### 1.2 Resources Availability in the MENA Region

The MENA region represents one of the main hotspots of climate change. Studies indicate climate change significantly impacts the MENA region, experiencing extreme heat, drought, and aridity (Waha et al. 2017). The authors highlight the region's exposure to rising temperatures exceeding the global average since 1990, along with pressing issues like water scarcity, dependence on rain-fed agriculture, and increasing aridity. Wasimi (2010) offers an in-depth insight into climate change and its impacts on water security in the MENA region. Using statistical tools and General Circulation Models (GCMs), Wasimi explores how atmospheric pressure, changes in precipitation, sea level rise and other extreme events point out the increasing impacts of climate changes that profoundly impact water resources. This research aims to reduce uncertainty for water resource planners by highlighting the growing trends and effects of climate change variables on water availability, quality, and demand. Sowers, Vengosh, and Weinthal (2011) emphasize the region's vulnerability to climate-induced water scarcity and political leaders' limited focus on adaptive governance strategies. The authors emphasize that although countries in the region managed water distribution and storage systems via dams and canals, water demand management actions were only enforced when severe droughts and declining aquifer and reservoir levels became critical (2011, 602). Lange (2018) explores the profound impacts of extreme climatic conditions on the water and energy nexus in the MENA region, classifying the region as a hotspot due to anticipated climatic changes surpassing global norms, which leads to increased energy demands for cooling (2018,

2). Lange's focus on the WEF nexus is valuable as it is becoming increasingly important for this region due to climate change's linked impact on all sectors. Alboghdady and El-Hendawy (2015) use Fixed Effect Regression (FER) analysis to assess the consequences of climate change on agricultural production in the MENA region. Their findings reveal varied relationships between climatic variables and agricultural output, with an increase in winter temperatures negatively impacting production (2015, 450). Therefore, the effects of climate change coupled with resource scarcity play an inevitable role in shaping the narrative and actions of the region. These studies effectively highlight the urgent need for climate response to mitigate the multifaceted impacts of climate change on the region's water, food and security.

Resource curse is another factor that defines the MENA region. Msann and Karthiayani (2023) explore how oil-rich countries are prone to rent-seeking behavior, highlighting the downsides of the dependence on natural resources. According to the authors, over-reliance on natural resources, if not properly diversified, often leads to poor governance and a high concentration of rent-seeking behavior. Oil drives a country's decisions globally rather than locally. This lens gives us a perspective on the macroeconomic foundations behind oil as a global commodity (Metcalf & Wolfram 2015). Metcalf and Wolfram underscore the political dynamics behind oil production, where volatility is closely connected to the degree of democracy in one country. Findings from Ali and Bhuiyan who use panel data from 15 MENA countries show that countries endowed with natural resources tend to have a lower degree of development over time as there is increase in utilizing the resources for personal use by the state (2022), thereby confirming the resource curse. Resource abundance, regardless of whether there is a democratic regime or not, can lead to the resource curse hypothesis (Belaid, Dagher & Filis 2021, 12). Hence, the resource curse often indicates the need for economic diversification and robust regulatory frameworks to mitigate the adverse effects of the concentration of power in one sector.

#### **1.3 The Political Economy of the MENA Region**

The political economy of the MENA region is uniquely characterized by colonial legacies, governance challenges and the complex interplay between religion and politics, which shapes distinct institutional and economic landscapes. Pelzman's book provides a comprehensive guide on differences in economic and institutional performance in MENA countries. Pelzman's argument that the MENA region views globalization as an imperial ideology highlights the different imperatives that guide economic policies and institutional frameworks, even among water and food security (2012). Even though after the Arab Spring, the global integration of MENA is increasing, this book still provides a critical analysis of the countries' economic policies that explain the differences in each country's performance. There are additional factors to this. The colonial legacies, democracy deficit, interplay between religion and politics, regional spillovers, patronage networks and corruption define the region's state (Solomon & Tausch 2021). In this case, Al-Dahdah et al. (2016) argue that effective law formulation and execution are more likely when the incentives are aligned with those in power. Their study, which examines cases in Morocco, Tunisia, and Jordan, highlights the broader economic and social implications behind the regulatory enforcement. This multifaceted perspective is important in formulating effective policies and strategies to address the region's unique challenges and harness its potential for sustainable development.

One of the main political challenges is corruption. Based on a sample of 15 MENA countries with the multivariate framework, research shows that corruption seriously limits foreign direct investment (FDI) and economic growth in MENA countries (Hakimi & Hamdi 2017; Alshehry 2020; Fhima 2018). As the MENA countries grapple with resource scarcity, FDI represents one of the major growth engines for countries that want to rely on investments rather than loans. In this regard, corruption also affects environmental quality, suggesting that developing countries' lack of environmental regulations attracts polluting industries from

developed countries (Wajdi & Ali Hfaiedh 2021). Corruption also plays a significant role in the banking sector as it causes selective loans, impairing the ability to effectively distribute finance to those who need it, especially those in rural areas. In this context, Souissi-Kachouri effectively demonstrates how corruption in the banking sector leads to impaired loans (2020). According to Akoum (2012), the MENA region lacks proper resource utilization and management due to public sector superiority and poor governance. Akoum offers a rich exploration of the State-Owned Enterprises (SOE) political economy and its resource management approach. The author explains that states' view as development providers explains the reluctance to adopt privatization, but this was perpetuated by vested interests and the dread of losing power (2012, 5). In the MENA region, understanding the role of corruption and vested interests is crucial in exploring the political economy and uneven resource allocation, often allocated to those with strong connections with the government.

What mainly characterizes and distinguishes this region is its high presence of the monarchical systems. Contemporary state practices underscore the continued relevance of monarchies (Pivneva 2020). As Talbot demonstrates, some of the monarchies, such as the Gulf Cooperation Council (GCC), became even more dominant and assertive after the Arab Spring (Talbot 2021). This dominance is reflected through a strong monarch's power, external support and resource wealth. What makes it more distinct is its combination of limited democracy and institutional frameworks that keep the ruler's power in place. For Yildirim and Zhang, Morocco's approach to the economic policies that combine the neoliberal system with social welfare programs signals the disparity in the holistic governance approach between the Monarch and the ruling parties. This is usually the result of the parties' dual strategies of appeasing both the monarchy and the electorate (2021). The other strand of the literature, on the contrary, highlights the resilience of monarchy systems that help solve credible commitment (Mazaheri 2013), promote democracy (Kirby 2000) and stabilization capacities

(Menaldo 2012; Koprulu and Abdulmajeed 2018; Korotayev & Khokhlova 2022) compared to the republics. Therefore, it is vital to understand monarchies' role and ability to respond to shocks to ensure the ruler's survival. This is becoming particularly relevant in the context of climate security and how monarchies address the crisis.

The relevance or irrelevance of political parties also plays a role in democratization efforts (Maghraoui 2019, 956). Maghraoui discusses how structural challenges, such as the limited power of political parties and the historical dominance of monarchies, hinder significant democratization reforms. Political parties in the MENA region have played vital roles in shaping current events and political contestation but often fail to meet their ambitions (Randjbar-Daemi, Sadeghi-Boroujerdi and Banko 2019). This book offers a comprehensive guide to the political parties' ambitions and failures in the region, underscoring their presence in critical political narratives such as gender, human rights and international solidarity, which is essential in understanding how these countries shape their international image. These parties started attracting broader support, advocating for more equitable and reformist agendas, which could shift the social class dynamics in MENA societies.(Hinnebusch 160, 2017). On the other hand, the results from García-Rivero and Kotzé show that electoral support for Islamic parties reflects a rejection of current state configurations and a demand for more significant religious influence on the state, impacting policy adoption in countries where these parties gain power (626, 2007). The democratization efforts pushed by political parties are relevant in promoting the democratic and inclusive climate policy narrative. It also serves as a motive for ruling systems to demonstrate their bureaucratic capabilities.

#### **1.4 MENA's Regional Dynamics**

Alongside internal challenges like resource scarcity and mismanagement, geopolitical dynamics, especially after the Arab Spring, have further complicated stability in the MENA region (Salloukh 2013, 43). Migration in the MENA has become a central theme in the climate

change discourse, with climate change driving massive migrations, especially from rural to urban areas and across borders. For countries facing severe water scarcity like Jordan, migration contributes to rising domestic demand for water and food, prompting policy changes. A qualitative study shows that migrations are a last resort for adapting to climate change (Wodon et al. 2014). Additionally, the changes in climate change not only affect agriculture and livestock production but are also positively correlated with changes in migration patterns, thus leading to a higher migration rate (2014, 31).

Additionally, groundwater stress and demographic pressures pose significant challenges to sustainable development in the MENA region (Ezbakhe & Foguet 2018; Takian et al. 2017). Findings from Ma and Najam show the increasing link between geopolitical stability and carbon emissions, suggesting that green finance and sustainable development are significant tools in reducing geopolitical risk (Ma and Najam 2023, 10). In this regard, transboundary cooperation in the renewable energy sector could improve sustainability and economic growth and reduce carbon footprint (Elfving 2016; Ramezani et al. 2022). This is important as findings show that the economic activity of one country may influence the neighbors's environment, especially if the renewables are not taken into consideration (Ramezani et al. 2022, 17). As we will see in the case of Jordan, Israel and Syria's economic decisions influence Jordan's water quantity. However, the presence of such natural resources can be related to regional terrorism, political instability, and unsustainable resource consumption (Tahir & Khan 2024; Vakhshouri 2011; Ezbakhe & Foguet 2018). Hence, geopolitical stability can be reflected through the holistic approach to addressing resource scarcity and climate security in the region.

Furthermore, climate change presents a unique opportunity for cross-border cooperation in the MENA region (Kaye & Valkin 2023, 2). Cooperation between the MENA region and external actors like the European Union (EU) and China could enhance energy

security and economic cooperation (Hawila et al. 2014; Hatipoglu, Al-Sarihi & Efirt 2023; Zoppolato & Yiang 2022). Strengthening coordination and cooperation among Arab states sharing water basins offers additional possibilities for regional integration (Malpass 2021; GIZ 2024; Morsy 2021). Thus, the geopolitics of resources in the MENA region is marked by significant challenges and opportunities stemming from its rich natural resource base and the regional dynamics often accompanying it.

#### **1.5 Case Selection**

The selection of Morocco and Jordan as case studies for studying climate policy adoption is driven by several key factors that highlight their significance in the context of resource scarcity, political governance and regional dynamics. Firstly, by using the Most Similar System Designs (MSSD), we ought to ask why countries with similar political systems have different policy outcomes? This strategy involves comparing two similar cases that differ in their outcome. By comparing two similar cases with different outcomes, the researcher can effectively control external factors and isolate independent variables that produce different outcomes (Steinmetz, 2019).

Morocco and Jordan are both impoverished kingdoms primarily reliant on external support. They shared similar SDG progress in 2023, with country scores of 70.9 and 69.9, respectively (Sustainable Development Report 2023). They are also among the first in the region to promote progressive climate policies, especially energy, and actively address climate change in their national reports. Additionally, they work diligently to adopt or renew their food and water policies, advocating for long-term strategies. On the other hand, both Morocco and Jordan share weak institutional frameworks, a lack of coordination and weak implementation of the policies.

Despite their similarities, the political landscapes in Morocco and Jordan present different trajectories regarding political stability, government effectiveness and levels of coordination, providing a unique opportunity to examine how these factors contribute to policy outcomes. According to the latest Democracy Index conducted by the Economist Intelligence Unit (EIU) in 2023, which measures from 1 (authoritarian) to 10 (full democracy), Morocco scores 5.3, changing the global rank from 95<sup>th</sup> to 93<sup>rd</sup>, while Jordan is ranked 122<sup>nd</sup>, stagnating at the global level with a weak performance score of 3.04.

Morocco and Jordan exhibit notable differences in resource scarcity and geographical characteristics. Resources play a significant role in these countries' climate policy narrative. Over-reliance on irrigated agriculture, droughts and migrations significantly increase water stress, resulting from growing demand over limited supply. Although both countries have adopted several water policies to tackle the issue, the differences in outcome (water stress) are still considerable (Graph 2). This means that Jordan, compared to Morocco, uses significantly more water than it can offer.

Regarding geographical characteristics, Morocco's relative proximity to Europe makes it an ideal opportunity for European-African trade and cooperation, especially in the context of Morocco's renewable energy export. At the same time, Jordan's proximity to states in deep conflict, like Israel and Syria, in addition to oil-rich countries like GCC, makes the country deeply exposed to migrations and persistent uncertainties.

Therefore, Morocco and Jordan offer an ideal comparative lens, where I tend to highlight the different motives that shape climate policies. Exploring these similarities and differences allows a nuanced understanding of the region's key drivers and barriers to adopting climate policy. Ultimately, the case selection should also provide the incentives behind monarchical systems and their ability to navigate the resources and regional dynamics.



Figure 3. "Morocco and Jordan Water Stress Differences in 2021." Food and Agriculture Organization. Accessed 16 May 2024. Exported from UN-Water <u>https://www.sdg6data.org</u>

Based on the literature, the following hypothesis are to be tested:

# H1: Resource availability is critical to climate policy adoption, leading to differences between Morocco and Jordan.

This hypothesis posits that the availability of resources affects the prioritization and implementation of climate policies. Morocco's relatively greater access to solar and wind energy resources may incentivize the adoption of renewable energy policies, while Jordan's water scarcity may drive the implementation of water conservation measures and climate adaptation strategies. Climate change is a crucial determinant and contributor to rising food insecurity and water scarcity. The rising temperatures, irregular precipitation patterns and droughts are negatively impacting agriculture and water which are highly correlated. Morocco and Jordan's increasing water scarcity is having wide implications for industries, households and agriculture. Thus, the meagre resources, coupled with the negative effects of climate

change, might have a significant influence in driving climate policy changes, albeit in different trajectories.

## H2: Politics and governance structures significantly affect climate policy adoption in Morocco and Jordan.

This hypothesis indicates that the political economy, including political stability, government effectiveness, and institutional capacity, significantly affects climate policy adoption in Morocco and Jordan. This suggests that variations in political contexts and governance systems between the two countries influence the decision-making process or the adoption of climate policies. For instance, Morocco and Jordan have a long history of uneven land tenure systems that still persist. This system is characterized by a small number of large estate owners alongside many small-scale farmers. This system not only perpetuates disparities in land access and property rights but also creates limited incentives among smallholders. This disparity was deepened by targeted subsidies and tax reliefs together with tribal affiliations that played a significant role in resource distribution. In the more contemporary dynamics, vested interests and elite networks may intersect with the country's political economy, where certain actors, including large landowners and entities, hold sway over resources such as water, food and energy or policy outcomes.

# H3: Geopolitics and international cooperation significantly affects climate policy adoption, resulting in variations between Morocco and Jordan.

This hypothesis points out that regional geopolitical tensions, alliances, and international agreements may impact these countries' prioritization, resources, and approaches to climate action. For instance, Morocco's active engagement in international climate initiatives

and alliances may lead to more ambitious climate policies than Jordan, which might face geopolitical constraints, increasing migrations and immediate security concerns from neighbors. Moreover, both Morocco and Jordan are highly dependent on imports. Thus, their geographical position influences the way they adopt policies that facilitate international trade and foster countries' economies. These countries' potential for renewable energy is leading to an increased number of export-led companies to facilitate the exchange balance. For Morocco, the country's abundant solar and wind power offers many opportunities. In the case of Jordan, the meager availability of water often leads to developing water transboundary partnerships with Palestine, Israel, and the United Arab Emirates (UAE) to combat water scarcity.

## 2. Research Design

The research design for this study involves two approaches that integrate qualitative data from interviews and content. Firstly, I interviewed representatives from journalism, the United Nations (UN), independent consultants and post-doctoral students. Twelve semi-structured interviews include journalists covering climate-related issues, UN representatives and individual consultants involved in climate initiatives in Morocco and Jordan, and post-doctoral students specializing in environmental studies of the MENA region. The interviews provide valuable and first-hand insights into the perspectives and experiences of various stakeholders in the climate policy landscape. Secondly, I did content media analysis where I explored the roles of resources, governance and regional dynamics from the most recent years (2024-2019) to complement the interview data and provide an understanding of the current state of climate policy in Morocco and Jordan. An additional reason for choosing the content media analysis aligns with Saraisky's point that the policy studies literature recognizes the media's crucial role in policy processes (Saraisky 28, 2016). Moreover, media holds significant importance in

shaping public opinion and political narrative. By binding data from interviews with the content from the media and reports, this research design aims to capture the nuances of climate policy adoption, contributing to a robust analysis of the factors shaping the policy landscape in Morocco and Jordan.

### 2.1 Methodology and Data Collection

For conducting interviews, I mainly relied on snowball sampling, which consisted of recommendations and proved to be highly effective. My current presence in academia and work in an international organization allowed me to reach out to these individuals based on the personal recommendations of my close friends and colleagues. I aimed for diversity in viewpoints, so I reached out to international consultants, journalists, post-doctoral students, and experts in the field. Although not knowing the language represents an evident barrier to broadening the interviewee's scope, these barriers were not present in these interviews due to the participant's excellent knowledge of English. 11 out of 12 interviewees are based in Morocco and Jordan, which gave me first-hand experience in the field, necessary for my analysis.

For content media analysis, I used Nexis Uni (formerly Lexis Nexis Academic), which consists of more than 15.000 international newspapers. I identified the articles mainly by keywords such as "natural resources", "climate change", "resources", "management", "water", "food", "energy", "initiatives", "National Policy", "initiatives", "Morocco", "Jordan", "climate risk", "governance", "political stability", "corruption", "political influence", "Ministry", "elites" and many more. For this research, I identified 105 articles based on the keywords, mainly relying on newspapers from the Arab region. Time constraints, biases, and enormous databases proved to be apparent impediments. Still, in this case, newspapers can complement the interviews in the climate policy narrative that is more

than just oriented on practical considerations. Additionally, I explored Morocco and Jordan's recent climate policies related to water, food and energy.

## 3. Insights from Morocco and Jordan

Before we delve into the conceptual cases of both countries, it is worth examining their history and policy legacy. Understanding their current position compared to historical legacies helps us understand the economic and political roots that can be structured in the country's fabric. Morocco was under the French protectorate, while Jordan was under British protectorate. They gained independence in the 20th century, but the remnants of history, especially in the context of food and water policies, still prevail in both countries. Once endowed with abundant resources that gradually led to scarcity, it is important to explore the implications of these historical legacies. Although gaining independence was a significant step for both countries, countries under colonial power were often left behind with depleted resources and skewed political systems. In this chapter, I briefly explain the post-colonial legacies. This is followed by the results of the qualitative analysis, where I present the main findings.

### 3.1 Overview and Historical Background

#### 3.1.2 A Brief History of Water and Food in Morocco

Morocco is a semi-arid country located in North Africa. Several events, including colonialism, political evolution, social transformation, and the continuation of numerous diplomatic challenges, define the history of Morocco. Being under Spanish and French protectorate, in 1956, Morocco achieved independence. The post-colonial dispute over the region surrounding Tindouf with Algeria brought regional instability, resulting in the Sand War in 1963. The annexation of Western Sahara in 1975 further brought geopolitical pressures to bear on Moroccan politics and economy, triggering a war against the separatist's army Polisario Front

and bringing back mistrust with Algeria. This mistrust remains today, leading Algeria not to renew the Maghreb–Europe Gas Pipeline (GME), a pipeline that exports gas to Europe through Morocco. After independence, irrigated agriculture played a significant role in Morocco's history. As irrigated agriculture relied on the water, the state's control over water increased. Thus, the state adopted an ambitious dam policy to facilitate resource management and allocation (Doukalli 2005, 78). This ambition was centered on attracting benefits, mainly boosting employment and helping irrigated agriculture, which is crucial to Morocco's economic engine. In 1960, Morocco developed a first five-year plan, to strengthen and modernize the agricultural sector. Simultaneously, the US Agency for International Development and the World Bank's contributions to Morocco's agricultural programs were already evident (Gayoso 1970), but the effects of liberalization took longer.

Despite the progress, Morocco could not escape the crisis. Global food prices rose due to lower agricultural investments, industrial developments, and oil discoveries. Increasing population and worldwide urbanization caused massive shifts from rural to urban areas, leaving the rural areas impoverished. The high global volatility and food import dependency fluctuated Morocco's economic growth (Ghanem 2015). The progress toward liberalization accelerated under King Mohammed VI, who started releasing state control over trade and production. Morocco entered many free trade agreements, such as the World Trade Organization in 1995, the Pan-Arab Free Trade Zone in 2005, the Arab-Mediterranean Free Trade Zone in 2008, and many bilateral agreements with the European and neighboring countries. As a result, tariffs fell from 66% to 19% in agriculture (African Development Bank 2017, 12). However, trade liberalization did not change the agricultural impact on water, which drained vast quantities of water. The neoliberal shift that started with the country's globalization and openness proved to bring some benefits, but at the same time, it increased the vulnerability of Morocco's farmers, who were not ready to compete in the global market. Cheaper imports and reduction of export

subsidies affected domestic production significantly. The agricultural share in GDP has gradually started declining, giving rise to the industry and services. According to the World Bank and Organization for Economic Co-operation and Development (OECD) National Accounts Data, from 1965 until 2022, the value added by agriculture (together with forestry and fishing) dropped from 23.4% to 10.3% (Figure 2). This is followed by a fall in total employment in agriculture from 43% in 1991 of total employment to 31% in 2022 (World Bank Open Data 2024).

King Mohammed VI continued his father's ambition of building dams and emphasizing water management and techniques. This resulted in a comprehensive national water strategy in 2008. At the same time, the Green Morocco Plan, one of the plans to address climate change, was established. This plan was intended to transform agricultural policy and modernize the techniques. As the effects of climate change are becoming notable, coupled with inadequate governance and policy management, the issue of water still represents one of the main concerns.



Figure 4. "Agriculture, forestry, and fishing, value added (% of GDP) - Morocco." World Bank and OECD. Accessed May 19, 2024, <u>https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS?locations=MA</u>.

#### 3.1.3 A Brief History of Water and Food in Jordan

Jordan is a semi-arid country located in the heart of the Middle East. Jordan geographically serves as one of the primary nexus between Africa, Asia, and Europe, and it is a central hub for migration due to the surrounding wars and crises. Jordan became independent in 1946, ending the British's control over territory. Similar to Morocco, water and agriculture are vital for Jordan. The state highly prioritized irrigated agriculture and water management. Moreover, the early influx of Palestinian refugees contributed to the shift and development of agricultural production (Suleiman 2003, 46). The Agricultural Credit Corporation (ACC) was also created in 1963 to bolster agricultural development (Seibel 2005, 7). Irrigated agriculture mainly relied on surface water, but in 1970, groundwater also started to play a role. In 1975, German Agency for International Cooperation (GIZ) started implementing its first projects for water in Jordan (Ziegler et al. 2018). At the same time, Jordan witnessed the growth of citrus orchards and banana trees, which started to strain water quantity. However, the farmers enjoyed vast quantities of water thanks to the surface water, groundwater, and water from dams.

Soon after prosperity, in 2000, Jordan started experiencing a crisis due to considerable debt, rapid urbanization, and the discovery of oil in neighboring countries, drawing labor from the country. This, in turn, caused lower domestic investments. Jordan also became heavily import-dependent on food. Rural poverty increased during these agricultural shifts, and the smallholder farmers were among the first victims. Additionally, Jordan is marked by regional inequalities where some farmers are exposed to the benefits while others are not. For example, highlands and Jordan Valley are exposed to more rain, although unevenly, resulting in bigger yields and a prevalence of products (Hjort, Zakaria and Salah 1998, 5). Despite the emerging issues, Jordan's focus on agriculture did not shift away, and significant developments occurred. One of the most notable charters, The Agricultural Policy Chapter, adopted in 1996, marks a significant change in the country's agricultural goals. This was intended to boost agricultural

production, enhance private sector participation, and limit the government's role as one of the main facilitators. Jordan joined the Great Arab Free Trade Agreement (1997), the World Trade Organization (2000), and the Jordanian European Partnership Agreement (2002). The most significant change included restructuring loan from the International Monetary Fund (IMF) to utilize trade liberalization and internal reforms. Similarly to Morocco, these reforms included abolishing all subsidies towards food production, which caused many sectors to shift their production due to unprofitability, accelerating the country's import dependence. As a response, Jordan also adopted the National Strategy for Agricultural Development 2002- 2010, focusing on increasing farmers' production and income, equalizing agriculture with other sectors, and increasing investments.

Regarding water policies, the Ministry of Water and Irrigation (MWI), the Jordan Valley Authority (JVA), and the Water Authority of Jordan (WAJ) are one of the main water distributors, but the coordination and overlap of duties were constantly impeding their capabilities. Jordan's emphasis on irrigation, trade liberalization, and reduction of subsidies rebounded. Water became one of the most expensive commodities, and its scarcity started to have effects. Jordan was also at the receiving end of the water transfer. Jordan shares the Dead Sea with Israel and the Upper Yarmouk River with Syria. Yarmouk River has always been important for Jordan's abundant agriculture in the north. Over time, Israel's water diversion from lakes and saline springs and Syria's usage of the Yarmouk River for agriculture contributed to the water decline in Jordan (Venot, Courcier, and Molle 2013). During the 1990s and for the following years, drought played a significant role in increasing this burden. Targeted tariffs and distorted incentives additionally contributed to the water issue (Yorke 2013). As a result, water quality started to decrease and was used inefficiently in some areas, while the new water supply methods were too expensive for Jordan's poor economy. These changes were not only economically costly but environmentally as well. Industrial pollution

started booming, along with freshwater reduction, and salinated water reaching irrigated systems was forcing farmers to switch modes of production (USAID 2012). However, from the 2000s onwards, wastewater played a significant role in the national water strategy. Later, in 2008, the creation of the Royal Water Committee led to a comprehensive National Water Strategy, and the government founded the National Water Advisory Council in 2011 to review and coordinate water plans. As it will be discussed in the subsequent section, the involvement of many ministries and authorities created coordination issues that persist today. Thus, due to internal and external factors, Jordan has become one of the most water-scarce countries in the world.

#### **3.2 Research Findings**

#### 3.2.1 The Impact of Resources

Resource availability is one of the primary mechanisms behind climate policy adoption in Morocco and Jordan. Research findings and interviews indicate a clear consensus about resources and climate adoption—resource scarcity significantly affects policy strategies in both countries, even if that does not align with the political incentives. This is reflected in the severity of the situation, where essential resources such as water and food are detrimental to national security and the state's survival.

The prognosis for water availability is stark. Morocco and Jordan will have to facilitate the ever-increasing water demand against limited supply. Smallholder farmers are the most vulnerable group, as they are at the end of the distribution line. When it comes to agriculture, Morocco and Jordan share notable similarities. Both countries continue to rely on irrigated agriculture, which consumes a considerable amount of water. Interviews point out that the irrigated system is becoming outdated and costly, but considering its long history, it would present challenges to change due to potential economic fragility for these countries. As a result, inefficient irrigation methods produce significant water losses. Additionally, agriculture constantly competes with other water users, such as industries and households, and is usually at the end of receiving lines. This is detrimental for smallholder farmers as the skewed water distribution reaches out to them last. This explains rural communities' relatively low access to public services (Figure 5).

On the other hand, Jordan's intensive agriculture in the Highlands and Jordan Valley leads to over-extractions of groundwater, causing water quality degradation. Governmental control over water is increasing, and larger firms with more financial power secure more water supplies. Although Jordan pioneered wastewater use as a supplementary water source, small farmers face barriers to accessing the resource due to limited financial constraints, inadequate infrastructure, or regulatory challenges. "There is a discrepancy between national and local levels of climate policies that overlook local needs. For example, although grants are abundant in smart agriculture and hydroponics, their projects benefit large-scale commercial agriculture. This is oriented toward those who export rather than boosting food security. Therefore, the focus is on return on investment for larger firms. Additionally, programs in remote locations face impediments and the inability to transport young people due to poor infrastructure. Jordan is trying to catch up on the growing trends by modernizing the technology, which puts limited access to local communities" (Interview 2, May 10, 2024).



Figure 5. V-DEM Variable Graph. "Access to Public Services Distributed by Urban-Rural Location."<sup>1</sup> Accessed 20 May 2024. <u>https://v-dem.net/data\_analysis/VariableGraph/</u>.

These resource concerns drive policy change. Droughts and other climate effects play additional factor to the reduction of resource quality and quantity. "In the run-up to the Arab Uprising, the region saw one of its most severe drought cycles in a century, resulting in the loss of livelihoods, increased food costs, and decreased purchasing power for the average population" (Interview 6, May 18, 2024). The droughts not only affect water but soil's capabilities as well. Morocco's Minister of Agriculture, Fisheries, Rural Development and Water and Forests, Mohamed Sadiki, stated that soil health is a crucial aspect of food security, sustainable development, and resilience and is a high national priority (Chemical Monitors Worldwide 2024). Soil-based agriculture is vital for water preservation and offers high-value crops such as olives, dates, and citrus that historically were important for economic growth and exports. The new World Bank's Climate and Development Report clearly indicates what water

<sup>&</sup>lt;sup>1</sup> Clarification: This question asks if geographic group is an important cleavage in society for the distribution of public services. Being below 3 threshold means in rural areas 10 to 25 percent (%) of the population lack access to basic public services of good quality.

loss means for Morocco. This includes slowly reaching the water scarcity threshold of 500 cubic meters (m3) per person per year, a reduction of GDP by 6.5 percent, and migration of 1.9 million Moroccans by 2050 (World Bank 2022). Thus, water has been a significant national concern. Ambassador Omar Hilale, Morocco's Permanent Representative to the United Nations, noted that water has always been central to Morocco's concerns (Agence Marocaine De Presse 2022). This also explains Morocco's latest adoption of the Morocco Water Security and Resilience Program in partnership with the World Bank, which will strengthen water sector institutions and increase supply that has been mainly consumed by agriculture. Morocco and the FAO adopted Water efficiency, productivity, and sustainability (WEPS) to enhance collaboration on water crisis issues. Most notably, the government adopted the renewed National Water Plan (PNE) 2020-2050, which includes the construction of dams, searching for new groundwater sources, and securing desalination plants with portable water supply and wastewater. As of 2021, Morocco has 149 dams (Agence Marocaine De Presse 2021) that represent the country's main pillars of water security.

For Jordan, harsh water conditions lead communities to adopt last-resort practices – migrations or water conservation. Being one of the most water-scarce countries in the world with only 97 m3 per capita per year, which is way below the 500 m3 per year threshold, climate change will decrease this availability by 30% by 2040 while increasing demand (World Bank 2022). The WEF nexus represents an ideal opportunity to create employment, which is Jordan's struggle for decades, especially among young people and women. Thus, Jordan launched The Youth for Climate Action initiative to enhance youth capacity building in addressing and advocating these issues. This initiative will integrate young policy-makers in proposing plans for mitigation and adaptation of the country to emerging climate issues. The water issue is its overreaching impact that affects all sectors and requires mass coordination, which currently is one of the main obstacles for Jordan. Minister Hala Zawati advocated for increased cooperation

and reviewed the Jordanian National Water Carrier Project, one of the pivotal projects for addressing water scarcity and enhancing WEF Nexus (Jordan News Agency 2021). Resource depletion leads to significant challenges – land degradation and soil salinity. Salination on irrigated land is mainly the result of weak infrastructure and over-exploitation of water, especially groundwater. Thus, desalination presents a national priority and prompts governments to "fund a large desalination plant on the Red Sea to inject 300 million cubic meters of additional freshwater into the system annually" (The New Arab 2024). Jordan cooperated with the FAO to address land degradation neutrality (LDN) in northern Jordan (MENAFN - Business & Finance News 2023) and adopted a new National Plan for Sustainable Agriculture 2022-2025 and National Strategy Jordan's Security 2021-2030.

Thus, there are several adoptions to mitigate the resource risks. For these countries, opportunities lie in the renewable energy sector, mainly solar and wind. The resource concern is that countries are highly energy import-dependent. Morocco and Jordan have to economically diversify and harness the potential of renewable sources as a form of adaptation. Morocco developed diverse financing mechanisms, such as the Low Carbon Strategy, Green Innovation Initiative, and Positive Impact Bond, spurring employment and economic growth in these sectors (Africa Renewal 2024). The idea behind these initiatives is to allow African countries to leverage and utilize their resource potential and export it to other countries. This idea coincides with Morocco's National Sustainable Development Strategy (NSDS), which puts decarbonization as one of the main pillars of sustainable growth. This transition requires applying green economy governance to all sectors, highlighting the importance and diversification of the WEF nexus. Morocco's unique position attracts renewable energy due to solar, wind, and desalination potential, which can bring many benefits. This potential allows Morocco to utilize the energy transition and increase exports, mainly to

Europe. In 2022, Morocco and the European Union signed a Green Partnership on energy, climate, and the environment to improve the cooperation between Europe and Africa.

Furthermore, the availability of green hydrogen stands out as a significant potential for Morocco. For instance, Morocco wants to utilize approximately one million hectares of public real estate for green hydrogen projects, positioning the country as the leading player in the global energy transition (MENAFN - Business & Finance News 2024). The government also adopted Generation Green 2020-2030 to address resource scarcity. Besides that, Morocco's potential to generate 25,000 MW of wind power provides a great example of Morocco's leadership in windshore energy (Frist 2023). Morocco adopted the National Hydrogen Strategy 2020-2050, where it sees the expansion of green hydrogen for domestic and international use. This aligns with the country's ambition to become a key leader for renewable energy in the region, where decarbonization becomes a critical global tool for combating climate change.

Jordan imports 90% of its energy. The situation is evolving so severely that it has started mobilizing support from all national, regional, and local levels. This even involves mosques using renewable energy (Energy Update 2022) and advocacy for "Green Ramadan," which will expand awareness of sustainable agriculture practices (Campaign Middle East 2023). The increasing influx of refugees started to put strain on the national resources. Akef Al-Zoubi, Chairman of the Water and Agriculture Committee in the Senate, credited King Abdullah II's approach in addressing this issue and proposed a new "Climate-Refugee Nexus" that addresses crisis issues and needed cooperation (Bahrain News Gazette 2024). This crisis led to Jordan's adoption of the National Financial Inclusion Strategy Jordan 2023-2028, which addresses the bottom 40%, including women, youth, and refugees (Alliance for Financial Inclusion 2024), and the resubmission of the National Adaption Plan (NAP) in 2021, calling

for urgent response. Thus, in addition to WEF, the new climate-refugee nexus becomes increasingly important for climate security.

#### 3.2.2 The Impact of Political Structures

Based on the content analysis and interviews, the findings indicate that even politically, adopting climate policy is important. The political landscape in Morocco and Jordan is widely influenced by the elite interests and wealthy individuals shaping the direction and effectiveness of these policies, often at the expense of the smaller stakeholders, such as smallholder farmers. Morocco positioned itself as a leader in renewable energy with projects such as Noor Solar Complex, among the world's biggest solar plants. These projects are often funded and distributed by a handful of foreign investors and Moroccan elites directing the benefits towards politically connected individuals with the financial capabilities to invest in such contracts. While these projects contribute to the national energy agenda and the environment, there are usually repercussions of the unequal resource distribution affecting rural communities that are already susceptible to climate change and see limited direct benefits from large-scale initiatives. Targeted subsidies and pricing mechanisms are developed in a way that benefits large agricultural enterprises and industrial consumers rather than small farmers. The land tenure system, which is a reflection of colonial legacies, is the representation of political biases with large land being occupied by powerful and significant stakeholders.

Similarly, Jordan is making water management a crucial component of its climate policy. Water management techniques and infrastructural projects are increasingly prioritized, but the supply is usually directed toward industrial zones and urban residents. Again, agriculture, which is a big consumer of water, is generally controlled by politically connected enterprises, leaving the rest with limited access to water and vulnerable to low productivity and climate change. The ongoing land distribution hampers the opportunities for small farmers to improve their practices, and people often are left with the choice to emigrate to the city. In both countries, elites remain potent actors that shape policy outcomes to serve their interests, leading to rentier state practices. "Corruption is like a poison of climate change. It prevents policies from being implemented on the ground. Some of the necessary programs, like preserving biodiversity, are not prioritized, perhaps because they are not in the interest of wealthy elites. Additionally, poor management consumes a lot of money and effort without good progress. However, if we can solve corruption, we can quickly implement green policies" (Interview 3, May 12, 2024). Thus, there is a misalignment of what is presented in the development policy agenda and what is being executed. The policies in practice remain exclusive and limit the broader efforts to achieve climate resilience. Climate change will further exacerbate these inequalities as limited access to water, energy, and land creates a vicious cycle that is hard to break. Subsidies often prioritize those who already have substantial resources. Thus, social cohesion and economic stability are fragmented due to persistent inequalities, and a more considerable segment of those who contribute to economic growth remain marginalized.

Another point that emerges from the findings is that climate policy adoption might serve as justification to increase the control of resources. Scarce resources also present political opportunities. The climate narrative presents a justified narrative to raise funds for monopolizing resources. There are two reasons for this. First, there has to be a clear definition of what is considered climate policy or climate instruments. "It is an important conversation there that an important distinction or at least unpacking is to be made whenever we talk about climate policy. We have a policy document at the country level that deals with all these issues without being called climate policy, right?" (Interview 7, May 17, 2024). Therefore, National Deterministic Contribution (NDC) represents a key political tool because it represents the state's outline for climate actions. Second, energy ambitions stressed primarily in NDC can be attributed to the international public good as they can serve as a catalyst for export and bridge the cooperation between these countries and other regions. In return, the governments can invest more in resource scarcity and increase the coordination of these resources. Similar discourse on this matter includes Haddad et al., who demonstrate how Morocco's vision of solar power often reinforces power hierarchies and neglects local input (Haddad et al. 2022). Davis highlights how Morocco uses the narrative to justify its control over local pastoralist populations, which is seen as problematic by the Moroccan monarchy (2006, 90). Thus, to demonstrate international commitment, the NDC's ambitions can simultaneously benefit those with the most power.

There are additional factors that stem from insufficient governance. First, the weak infrastructure is evident, and the distribution of water and energy is inadequate despite the investments in renewable energy projects. There is a notable discrepancy between the infrastructure of urban and rural areas, with rural communities left behind. Jordan's infrastructure seems more acute and widespread due to the country's severe water scarcity and limited resources. Projects like the USAID-funded Water Governance Activity aim to address these issues, but Jordan's overall infrastructure still needs to be improved to meet growing demands. Second, both countries lack proper coordination and a holistic approach to climate policies, but these challenges differ, especially for Jordan. For example, the agricultural sector's water needs to balance against urban water consumption and energy requirements, which results in policy conflicts among the ministries. Such ambitions often lead to conflicting priorities between the government departments. Jordan's Economic Vision initiative aims to foster such coordination, but achieving an integrated policy framework is challenging due to the immediate national concerns and overpopulation resulting from migrations from neighboring countries. Third, Morocco and Jordan are highly dependent on food imports. Despite the initiatives, their agricultural sector cannot meet the demand due to regional disparities and focus on exporting high-value crops, leaving the other domestic producers behind. Jordan's arid climate and limited arable land make it even more susceptible to food imports and vulnerable to global market fluctuations and disrupted food supply chains. This is bolstered by the ongoing conflicts and refugee influxes that strain its resources.

### 3.2.3 The Impact of Regional Dynamics

Climate diplomacy is of significant importance for Morocco and Jordan. "72% of all greenhouse gases come from energy, so you cannot separate energy and climate change easily because they are completely interlinked. Especially in the region, but because our region is not uniformed. For Morocco and Jordan, you cannot talk about one without the other" (Interviewee 9). However, findings indicate that geopolitical landscape and regional dynamics influence climate policy adoption for Jordan, while not for Morocco. This is evident in the fact that the Maghreb region, which captures countries of North Africa, remains the least integrated into the world (Kireyev et al. 2019). There are several reasons for this. Although Morocco and Jordan actively work on their international presence to build the image of a green monarchy globally, their neighbors can influence the adoption of their policy. Morocco and Jordan share similarities in regional disparities, with the north being abundant and more populated while the south is arid and displaced. However, this is where location and historical trajectories play a role. Jordan is highly affected by transboundary obscurities and uncertainties. The influx of refugees escaping the wars put a particular strain on the country's resources, which the government needs to monitor and coordinate actively. Additionally, climate migrations put additional nuance to this. These migrations prompted Jordan to adopt a new Climate-Refugee Nexus to address the growing resource needs.

Moreover, Jordan shares its experiences with shared water resources with neighbors like Israel and Syria. All countries rely on agriculture significantly, which causes a disbalance in water proportions for Jordan. Jordan is becoming increasingly ambitious in creating regional cooperation and addressing these issues. Its climate policies are oriented to transform the country as a regional cooperation hub and increase its water independence. Compared to Morocco, Jordan stands at a critical juncture in facilitating this internal and external balance. For example, the country adopted the Jordan Response Plan (JRP) for the Syrian Crisis in 2023, which will serve as a budget for accommodating the refugees and their needs (Bahrain News Gazette 2024).

Moreover, Jordan's focus on resilience is of greater importance than opportunities like Morocco's. The government signed the memo between Jordan and UAE for development projects in the Kingdom and approved Jordan's support for UAE's Declaration on Sustainable Agriculture, Resilient Food Systems, and Climate Action (Arab News Digest 2023). Jordan is also a member of The Union for the Mediterranean (UfM), which aims to promote regional integration and policy coordination. This includes MENA Water Matchmaker 2, which has allowed farmers in Jordan and Palestine to reuse treated wastewater, or the Water-Energy-Food-Ecosystem Nexus for Sustainable Development in MENA, which enhances environmental sustainability in Egypt and Jordan by fostering the adoption of the WEFE Nexus approach among policymakers and bolstering food and water resilience among targeted communities (Iraq News Gazette 2024). Prince Hassan also calls for re-establishing the Red Sea Commission, allowing bordering countries to negotiate and share experiences (The Jordan Times 2023). Thus, Jordan's regional and international presence demonstrates a lot of ambitions. The regional workshops and seminars address the water crisis and prioritize the resources in the region as potential resources for cooperation. Water crises can involve conflict states to cooperate and enhance regional cooperation.

This is not to undermine Morocco's efforts to call for regional integration. Morocco has been a critical player in North Africa's region in bridging the gap with the rest of the world. Findings show that Morocco is creating a crucial cooperation between South-South connecting the area with South Africa and South America. It has also implemented several projects with the cooperation of the US, UK, and Europe. Morocco recently signed four Memorandums of Understanding (MoUs) with Congo, Egypt, Russia, and Saudi Arabia to foster mineral cooperation (Impact News Service 2024). This resource aligns with their national aspirations of renewable energy projects.

#### **3.2.4 Policy Implications**

The findings from Morocco and Jordan reveal significant policy implications that stem from these three aspects in order to build more holistic development picture. In order to mitigate the adverse effects, these findings are stressing the importance of equal resource distribution, inclusive practices, and regional cooperation. However, there are few important policy implications to highlight.

First, the primary policy implications should urgently address resource management. Both Morocco and Jordan are facing severe water shortages exacerbated by the severe effects of climate change. These policies must prioritize water use and different agricultural practices that would integrate smallholder farmers. These practices have to rely on sustainable mechanisms that preserve water but, at the same time, are accessible to the farmers. Since the countries continue to rely on irrigation, examples include developing drip irrigation systems, which are more efficient than the traditional way and far more effective in reducing water waste. Considering Morocco's ambitious forestation programs, agroforestry can integrate trees into agricultural landscapes to increase biodiversity and improve water conservation and soil structures. Policies should also focus on equitable water distribution. The current system favors larger export-oriented agricultural entities, leaving the small stakeholders vulnerable to external shocks. Policymakers and international organizations can implement subsidy reforms and support packages to ensure these farmers have adequate access to resources. This mainly includes financial assistance to allow farmers to adapt to modern agricultural techniques and infrastructure that often left them behind. The over-extraction of groundwater and water competition are contributing to these disparities. Policies should target groundwater

management and promote more alternative water sources, especially wastewater, which can be crucial for these countries. The policies should focus on eliminating all sorts of taboos around wastewater. For example, there are "sort of taboos around the use of treated wastewater because, in certain ideologies, you cannot use dirty things for human consumption. So states have issued this fatwa to allow farmers to actually, as part of behavioral change to allow farmers to adjust to a new reality of using treated wastewater to produce food, which is very important, a fundamentally important thing" (Interview 7, May 17, 2024). Wastewater is, thus, becoming increasingly important for water conservation.

Second, the political landscape in both countries continues to shape the climate policies to the elite's advantage. These policy dynamics led to unequal resource distribution and limited the effectiveness of climate policies that would benefit the smaller stakeholders. Thus, a concerted effort must be made to democratize this policy, as farmers hold significant leverage in these countries. Policies should ensure that the voices of marginalized groups are heard and considered. One way to do this is to increase transparency and accountability in climate policy formulations. Climate data plays a significant role here. Therefore, policies should increase reliable statistics and data accessibility to get closer to reality. Accurate and timely data inform decision-makers about current practices and their impact, enabling them to reallocate resources where necessary. Considering the drastic effects of climate change, investments in data collection methods to predict weather variability would help small farmers adapt to changing realities more quickly. Data is also helpful in monitoring policy effectiveness so that policy adoption mechanisms can be improved. The robust influence of international partners should also aim to incentivize the states to adopt independent bodies to control the distribution of resources, as the authorities are currently the observers. Since the countries rely on external funds, these funds can dictate this policy. Furthermore, decentralized policies should grant

more autonomy to marginalized farmers and empower local communities. Participatory approaches that strengthen inclusive and effective policies should be increased.

Finally, the potential of renewable energy and economic diversification that can serve these countries should also be oriented toward marginalized groups to increase the country's potential. Examples such as solar-powered irrigation can harness the potential of high temperatures and present a novel way of increasing production and water preservation for small farmers. This unique situation also presents opportunities to develop land reforms through the development objectives. Land reforms and pricing mechanisms should prioritize distributing unused land to small farmers who can increase economic productivity and empower them with solar irrigation projects that will allow them to adapt to new technologies. This aligns with national priority over decarbonization, where all stakeholders can benefit. This would also reduce the energy-dependent import that exposes these countries to global fluctuations. Additionally, allowing small farmers to diversify can help them increase their capabilities compared to large entities, which already constitute greater power. This diversification, together with insurance schemes that protect them from the inevitable effects of climate change, would increase the country's economic input and reduce dependencies on particular products. Moreover, investing in research identifying suitable crops and best practices would reduce additional costs and increase climate-resilient crop varieties well-suited to local conditions. This type of knowledge should be provided to these small farmers on the different ways to implement these strategies effectively and help them increase their benefits.

## Conclusion

This thesis has explored the multifaceted relationship between resource availability, political economy, and regional dynamics in shaping climate policy adoption. Climate policy refers to policies that mitigate the adverse effects of climate change, including water, food, and energy.

This research analyzes climate crisis countries with different policy outcomes through insights from Morocco and Jordan. The MENA region that is known as the "cradle of civilization" is becoming known as the "cradle for climate insecurity," with stark projections that climate change will decrease economic output, increase water stress, and bolster urban-rural migrations, highlighting the urgent need to mitigate these effects.

Resource availability has emerged as a critical driver of climate policy adoption in both Morocco and Jordan; water scarcity plays a pivotal role in shaping the national policies of these countries. In Morocco, the emphasis is on renewable energy, particularly solar and wind, as a strategic response to diversify energy sources. Strategies such as the National Hydrogen Strategy and Green Morocco Plan are some of the many projects that reflect the country's commitment to harness the potential of the given temperature conditions. Morocco's ambition to become a leader in renewable energy is also evident in its effort to develop a partnership with its neighbors like the EU and position itself as a critical player in the global energy transition. On the other hand, Jordan is facing severe water scarcity, making water conversation and management a top priority. Projects like The National Water Carrier Project and partnerships with neighboring countries to desalinate water underscores the urgent need to address this water deficit. The country's reliance on water pumping highlights the urgent need to find alternate water supply sources to meet the increasing need.

The political landscape continues to impose several difficulties on the existing resource scarcity. Powerful stakeholders and actors in close relations with the ruling structures tend to shape climate policies. Large-scale renewable energy projects benefit the national level but often exclude smallholder farmers due to unequal distribution of resources and targeted price mechanisms that further create this gap. The elite-driven approach is one of the significant impediments to resource management that limits its potential effectiveness. The ongoing issues of land systems broaden this gap as the more extensive lands are occupied by wealthier entities,

controlled mainly by those with vested interests. This presents an opportunity to use energy transition as an instrument to increase the participatory and inclusive decision-making that will slowly integrate the marginalized communities who can significantly contribute to climate security issues.

Finally, geopolitical factors and regional dynamics are furthering the climate policy agenda in the region due to the never-ending conflicts and greater portions of shared water resources where one policy affects another. This is more severe for Jordan, whose shared resources continue to shrink while populations keep increasing due to massive migrations. The influx of refugees prompted Jordan to consider alternatives, adopting the novel Climate-Refugee nexus, which is undoubtedly the future of climate change discourse. Morocco's proximity to Europe makes it an ideal partner for fostering Europe-Africa Partnerships and integration has to be carefully planned and oriented towards benefits to the domestic producers rather than leaving them without tools to compete against global markets. The increased dependency underscores the need to diversify economically, allow domestic farmers to shift toward high-value produce, and expose them to the benefits of international markets, such as technology transfer, knowledge sharing, and more advanced agricultural techniques.

This research also opens new avenues for further study. In the context of a looming crisis, investigating the intersection of climate change and migrations will be an invaluable tool for understanding and adapting countries to increase climate resilience. The interlink of water, energy, and food presents a future for countries that want to utilize their renewable energy potential to increase their resource supplies. Exploring the technology and adaptive mechanisms that will improve the holistic approach will be an invaluable policy tool for the future. The role of renewable energy in economic diversification can change the strategies in favor of domestic farmers. Governance and institutional capacity need to be aligned with these

incentives and start bridging the gap between the urban and rural divide. Transboundary water partnerships also present a distinct opportunity to connect conflicting states and promote peace agreements. Therefore, climate security should be a national priority for these regions in order to reduce internal conflicts and foster a more equitable future.

## **Reference List**

"Ambassador Hilale in Dushanbe: Morocco's Water Security at Heart of its Sovereigns' Concerns." Agence Marocaine De Presse (MAP). June 10, 2022 Friday. <u>https://advance.lexis.com/api/document?collection=news&id=urn:contentItem:65N9-W6X1-</u> F11P-X3M5-00000-00&context=1516831.

"Climate Discourse." Energy Update. August 31, 2022 Wednesday.

https://advance.lexis.com/api/document?collection=news&id=urn:contentItem:6696-MPG1-F00C-605M-00000-00&context=1516831.

"Deal Signed To Achieve Land Degradation Neutrality In Northern Jordan."

MENAFN - Business & Finance News (English). January 29, 2023 Sunday.

https://advance.lexis.com/api/document?collection=news&id=urn:contentItem:6838-YBW1-DY6B-2067-00000-00&context=1516831.

"Experts Highlight Jordan's Sustainable Food Security Solutions Over Quarter

Century." Bahrain News Gazette. February 13, 2024 Tuesday.

https://advance.lexis.com/api/document?collection=news&id=urn:contentItem:6BB7-BF91-JCH9-G0VR-00000-00&context=1516831.

"Government approves development projects memo between Jordan, UAE."Arab

News Digest. November 29, 2023 Wednesday.

https://advance.lexis.com/api/document?collection=news&id=urn:contentItem:69S1-CX51-

JCH9-G2HN-00000-00&context=1516831.

"Hotter and hungrier: The Middle East in a 1.5C warmer world." The New Arab.

February 26, 2024 Monday.

https://advance.lexis.com/api/document?collection=news&id=urn:contentItem:6BDT-CTX1-

F11P-X0PS-00000-00&context=1516831.

"IRI Jordan Poll Shows Improved Economic Outlook, Desire to Fight Corruption and Strengthen Political Parties." Impact News Service. May 16, 2024 Thursday.

https://advance.lexis.com/api/document?collection=news&id=urn:contentItem:6C22-JMV1-F0YC-N51N-00000-00&context=1516831.

"Jordan Response Plan for Syrian Crisis funding at 29.2% in 2023-Planning

Ministry." Bahrain News Gazette. February 17, 2024 Saturday.

https://advance.lexis.com/api/document?collection=news&id=urn:contentItem:6BBW-8C41-JCH9-G4ST-00000-00&context=1516831.

"Minister: water and energy security fundamental to sustainable development." Jordan News Agency (Petra). September 15, 2021 Wednesday.

https://advance.lexis.com/api/document?collection=news&id=urn:contentItem:63M9-P1N1-JDJN-61DR-00000-00&context=1516831.

"Ministry of Industry Signs MOUs with Four Countries to Foster International

Cooperation in Minerals." Impact News Service. January 11, 2024 Thursday.

https://advance.lexis.com/api/document?collection=news&id=urn:contentItem:6B3T-MNN1-

JDG9-Y0WB-00000-00&context=1516831.

"Morocco and Jordan Water Stress Differences in 2021." Food and Agriculture

Organization. Accessed 16 May 2024. Exported from UN-Water https://www.sdg6data.org

"Morocco Renews Commitment to Share Fertilizer, Soil Experience with African

Countries." Chemicals Monitor Worldwide. May 9, 2024 Thursday.

https://advance.lexis.com/api/document?collection=news&id=urn:contentItem:6C0C-GPC1-JDJN-64YD-00000-00&context=1516831.

"Morocco reveals ambitious intentions for green hydrogen projects." MENAFN -Business & Finance News (English). March 12, 2024 Tuesday. https://advance.lexis.com/api/document?collection=news&id=urn:contentItem:6BJ4-MN41-JBR8-B1YP-00000-00&context=1516831.

"New Revenue Streams - Using Africa's Vast Renewable Energy and Natural Resources for Premium Carbon Credits."Africa Renewal. May 16, 2024. <u>https://advance.lexis.com/api/document?collection=news&id=urn:contentItem:6C22-G351-</u>

JBJ4-2020-00000-00&context=1516831.

"UFM Emphasises Importance of Sustainable Water Management Cooperation in Drought-Stricken Euro-Mediterranean Region." Iraq News Gazette. March 22, 2024 Friday. <u>https://advance.lexis.com/api/document?collection=news&id=urn:contentItem:6BM9-XB01-F00C-61JC-00000-00&context=1516831</u>.

African Development Bank. 2017. "Analysis of Morocco's Trade Policy." Impact of Morocco's Tariff Policy on its Competitiveness, Volume 1.

https://www.afdb.org/en/documents/document/analysis-of-moroccos-trade-policy-volume-1-94490.

Akoum, Ibrahim. 2012. "The Political Economy of SOE Privatization and Governance Reform in the MENA Region." Edited by E. Yeldan, F. R. Fitzroy, and C. A. Gallet. *ISRN Economics* 2012 (November): 723536. <u>https://doi.org/10.5402/2012/723536</u>.

Al-Dahdah, Edouard, Cristina Corduneanu-Huci, Gael Raballand, Myriam Ababsa, and Ernest Sergenti. 2016. "Overview." In *Rules on Paper, Rules in Practice: Enforcing Laws and Policies in the Middle East and North Africa*, 1–8. Directions in Development -Public Sector Governance. The World Bank. <u>https://doi.org/10.1596/978-1-4648-0886-9\_ov</u>.

Alboghdady, Mohamed, and Salah E. El-Hendawy. 2016. "Economic Impacts of Climate Change and Variability on Agricultural Production in the Middle East and North Africa Region." *International Journal of Climate Change Strategies and Management* 8 (3): 463–72. <u>https://doi.org/10.1108/IJCCSM-07-2015-0100</u>. Alliance for Financial Inclusion. "Jordan's National Financial Inclusion Strategy (2023-2028)." Accessed 18 May 2024. <u>https://projects.worldbank.org/en/projects-operations/project-detail/P179192</u>.

Alshehry, Atef Saad. 2020. "The Impact of Corruption on FDI in Some MENA Countries." *International Journal of Applied Economics, Finance and Accounting*. 7 (1): 39– 45. <u>https://doi.org/10.33094/8.2017.2020.71.39.45</u>.

Bardi, Wajdi, and Mohamed A. Hfaiedh. 2021. "Causal Interaction between FDI, Corruption and Environmental Quality in the MENA Region." *Economies* 9 (1). <u>https://doi.org/10.3390/economies9010014</u>.

Cammett, Melani Claire, Ishac Diwan, and Alan Richards. 2015. "Water and Food Security." In *A Political Economy of the Middle East*. Fourth edition. New York, NY, USA: Routledge, Taylor & Francis Group. <u>https://www.taylorfrancis.com/books/e/9780429492600</u>.

Cho, Danny I., and Tomson Ogwang. 2014. "Water Poverty Index." In *Encyclopedia* of *Quality of Life and Well-Being Research*, edited by Alex C. Michalos, 7003–8. Dordrecht: Springer Netherlands. <u>https://doi.org/10.1007/978-94-007-0753-5\_3703</u>.

Dauphin, Alexei P. Kireyev, Boaz Nandwa,Lorraine Ocampos,Babacar Sarr,Ramzy Al Amine,Allan G. Auclair,Yufei Cai,Jean-Francois. 2019. "Economic Integration in the Maghreb: An Untapped Source of Growth." IMF. Accessed May 20, 2024.

https://www.imf.org/en/Publications/Departmental-Papers-Policy-

Papers/Issues/2019/02/08/Economic-Integration-in-the-Maghreb-An-Untapped-Source-of-Growth-46273.

Davis, Diana K. 2006. "Neoliberalism, Environmentalism, and Agricultural Restructuring in Morocco." The Geographical Journal 172 (2): 88–105.

Declaration, Rome. 1996. *Rome Declaration on World Food Security and World Food Summit Plan of Action*.

Doukkali, Mohammed. 2005. "Water Institutional Reforms in Morocco." *Water Policy*. 7 (1): 71–88. <u>https://doi.org/10.2166/wp.2005.0005</u>.

Economist Intelligence Unit. 2023. "Democracy Index 2023." Accessed 12 May 2024. <u>https://www.eiu.com/n/campaigns/democracy-index-2023</u>.

Eleanor Frist. "How Morocco Could Be A World Leader In Renewable Energy: Offshore Wind Farms – Analysis." Eurasia Review. July 16, 2023 Sunday. <u>https://advance.lexis.com/api/document?collection=news&id=urn:contentItem:68T9-G6Y1-</u> JDJN-63CJ-00000-00&context=1516831.

Elfving, Sanna. 2016. "Prospective governance and legal framework between the eu and mena in renewable energy cooperation." *Renewable Energy Law and Policy Review* (*RELP*), 7(2), 157-171. <u>https://heinonline.org/HOL/P?h=hein.journals/relp2016&i=173</u>.

Ezbakhe, F., and A. Pérez-Foguet. 2018. "Aquifer Contracts for Groundwater Resources Planning in the MENA Region: A Means to Support Stakeholder Participation?" In *Proceedings of 3rd International Conference on Integrated Environmental Management for Sustainable Development: ICIEM-3, Tunisia 2018, by International Conference on Integrated Environmental Management for Sustainable Development,* 1–2.

http://hdl.handle.net/2117/134407.

Fhima, Fredj. 2018. "Corruption, Banking Stability and Economic Growth in the MENA Region," *Proceedings of International Academic Conferences* 8209472, International Institute of Social and Economic Sciences. <u>https://ideas.repec.org/p/sek/iacpro/8209472.html</u>. Food and Agriculture Organization. "Water Scarcity." Accessed 12 May 2024. https://www.fao.org/land-water/water/water-scarcity/en/. Fritzsche, Kerstin, Driss Zejli, and Dennis Tänzler. 2011. "The Relevance of Global Energy Governance for Arab Countries: The Case of Morocco." *At the Crossroads: Pathways of Renewable and Nuclear Energy Policy in North Africa* 39 (8): 4497–4506. https://doi.org/10.1016/j.enpol.2010.11.042.

García-Rivero, Carlos, and Hennie Kotzé. 2007. "Electoral Support for Islamic Parties in the Middle East and North Africa." *Party Politics* 13 (5): 611–36.

https://doi.org/10.1177/1354068807080088.

Gayoso, Antonio. 1970. "Agricultural Development Strategies in Morocco 1957-1970." U.S. Agency for International Development.

German Development Agency (GIZ). 2024. "Adaptation to Climate Change in the Water Sector in the MENA-Region :Transboundary Water Management." Accessed 10 May 2024. <u>https://research.ebsco.com/linkprocessor/plink?id=d658e9e5-8898-3889-b9b1-3b82079b6194</u>.

Ghiabi, Maziyar. 2018. "Deconstructing the Islamic Bloc: The Middle East and North Africa and Pluralistic Drugs Policy." In Collapse of the Global Order on Drugs: From UNGASS 2016 to Review 2019, edited by Axel Klein and Blaine Stothard, 167–89. Emerald Publishing Limited. https://doi.org/10.1108/978-1-78756-487-920181008.

Global Water Forum. 2012. "Understanding water scarcity: Definitions and measurements." Accessed 5 May 2024.

https://www.globalwaterforum.org/2012/05/07/understanding-water-scarcity-definitions-andmeasurements/.

Hafez Ghanem. 2015. "Agriculture and Rural Development for Inclusive Growth and Food Security in Morocco." Brookings. Accessed May 23, 2024.

https://www.brookings.edu/articles/agriculture-and-rural-development-for-inclusive-growthand-food-security-in-morocco/. Hakimi, Abdelaziz, and Helmi Hamdi. 2017. "Does Corruption Limit FDI and Economic Growth? Evidence from MENA Countries." *International Journal of Emerging Markets* 12 (3): 550–71. <u>https://doi.org/10.1108/IJoEM-06-2015-0118</u>.

Hatipoglu, Emre, Aisha Al-Sarihi, and Brian Efird. 2023. "Chapter 28: Geopolitical Challenges of Renewable Energy Adoption in MENA." 498–512. Cheltenham, UK: Edward Elgar Publishing. <u>https://doi.org/10.4337/9781800370432.00036</u>.

Hawila, Diala, Md. Alam Hossain Mondal, Scott Kennedy, and Toufic Mezher. 2014. "Renewable Energy Readiness Assessment for North African Countries." *Renewable and Sustainable Energy Reviews* 33 (May): 128–40. <u>https://doi.org/10.1016/j.rser.2014.01.066</u>.

Hinnebusch, Raymond A. 2017. "Political Parties in MENA: Their Functions and Development." *British Journal of Middle Eastern Studies* 44 (2): 159–75.

https://doi.org/10.1080/13530194.2017.1281577.

Hjort, Kim C., Zakaria, Majed, Salah, Falah I. 1998. "An Introduction to Jordan's Agriculture Sector and Agricultural Policies." U.S. Agency for International Development. Accessed 20 May 2024. <u>https://pdf.usaid.gov/pdf\_docs/Pnacn066.pdf</u>.

Humpal, Don, Hazim El-Naser, Khaled Irani, John Sitton, Kevin Renshaw, and Brett Gleitsmann. 2012. "A Review of Water Policies in Jordan and Recommendations for Strategic Priorities." U.S. Agency for International Development. Accessed 20 May 2024. https://pdf.usaid.gov/pdf\_docs/PBAAE636.pdf.

International Monetary Fund. 2024. "World Economic Outlook Database." Accessed 12 May 2024. https://www.imf.org/en/Publications/WEO/weo-database/2024/April.

JT. "Cooperation on Rift Valley line key to sustainable development — Prince Hassan". The Jordan Times. July 6, 2023 Thursday.

https://advance.lexis.com/api/document?collection=news&id=urn:contentItem:68MV-GB91-JDJN-63MV-00000-00&context=1516831. Kaye, Dalia Dassa, and Sanam Vakil. 2023. Seizing MENA's Moment : How to Build a Sustainable Forum for Region-Wide Cooperation. Chatham House.

http://lup.lub.lu.se/record/d77bd106-8b65-43ec-907f-efe4a0c0c859.

Kirby, Owen H. 2000. "Want Democracy? Get a King." *Middle East Quarterly*. <u>https://www.meforum.org/52/want-democracy-get-a-king</u>.

Koprulu, Nur, and Hind Abdulmajeed. 2019. "Are Monarchies Exceptional to the Arab Uprisings? The Resilience of Moroccan Monarchy Revisited." *Digest of Middle East Studies* 28 (1): 4–22. <u>https://doi.org/10.1111/dome.12159</u>.

Korotayev, Andrey V, and Alina A Khokhlova. 2022. "Effect of the Arab Spring on Stabilization Capacity of the MENA Monarchies." *Journal of Asian and African Studies* 57 (2): 289–307. <u>https://doi.org/10.1177/00219096211017309</u>.

Lange, Manfred A. 2018. "The Impacts of Climate Change in the MENA Region and the Water-Energy Nexus." Preprints, October.

https://doi.org/10.20944/preprints201810.0197.v1.

Latif, Dilek, and Nusret Sinan Evcan. 2022. "Reconsidering 'EU Actorness' in Changing Geopolitics of the Eastern Mediterranean Region." *Insight Turkey* 24 (4): 123–44.

Ma, Xiang, and Hina Najam. 2024. "Achieving Environmental Sustainability Goals through Capitalizing on Renewable Energy Channels: Role of Green Finance, Resources Productivity and Geopolitical Situation in the MENA Region." *Geological Journal*. <u>https://doi.org/10.1002/gj.4972</u>.

Maghraoui, Driss. 2020. "On the Relevance or Irrelevance of Political Parties in Morocco." *The Journal of North African Studies* 25 (6): 939–59. https://doi.org/10.1080/13629387.2019.1644920. Malpass, D. 2021. "Regional integration in the Middle East and North Africa: A call to action." World Bank Blogs. <u>https://blogs.worldbank.org/en/voices/regional-integration-</u>middle-east-and-north-africa-call-action

Manikas, Ioannis, Beshir M. Ali, and Balan Sundarakani. 2023. "A Systematic

Literature Review of Indicators Measuring Food Security." Agriculture & Food Security 12

(1): 10. https://doi.org/10.1186/s40066-023-00415-7.

Marwa Kaabour, Group Head of Marketing and Corporate Communication, Al

Masaood. "Green Ramadan Innovating to achieve Sustainable Development Goals."

Campaign Middle East. June 15, 2023.

https://advance.lexis.com/api/document?collection=news&id=urn:contentItem:68GB-DWK1-JDJN-64FS-00000-00&context=1516831.

Marwa, Elsherif. 2016. "The Impact of Globalization on Economic Conditions: Empirical Evidence from the MENA Region."

https://www.researchgate.net/publication/362418417 The impact of globalization on econ omic conditions empirical evidence from the Mena region.

Mazaheri, Nimah. 2013. "The Saudi Monarchy and Economic Familism in an Era of

Business Environment Reforms." Business and Politics 15 (3): 295-321.

https://doi.org/10.1515/bap-2012-0039.

Menaldo, Victor. 2012. "The Middle East and North Africa's Resilient Monarchs."

The Journal of Politics 74 (3): 707–22. https://doi.org/10.1017/S0022381612000436.

Mitchell, Timothy. 2011. *Environmental Imaginaries of the Middle East and North Africa*. 1st ed. Ohio University Press. <u>http://www.jstor.org/stable/j.ctt1j7x58w</u>.

"Morocco Has 149 Large Dams with Capacity Exceeding 19 Bln m3 (Official)." 2021.

Agence Marocaine De Presse. Accessed 24 May 2024.

https://www.mapnews.ma/en/actualites/economy/morocco-has-149-large-dams-capacityexceeding-19-bln-m3-official.

Morsy, Hayat. 2021. "Transboundary Water Interaction in the Middle East and North Africa. A Case Study of the River Nile Basin." *PQDT - Global*. <u>M.Sc</u>., Greece: University of Piraeus (Greece). 2715587177. ProQuest Dissertations & Theses Global: The Humanities and Social Sciences Collection. <u>https://doi.org/10.26267/unipi\_dione/1361</u>.

Pelzman, Joseph. 2011. "The Economics of the Middle East and North Africa (MENA)." World Scientific. <u>https://doi.org/10.1142/7963</u>.

Pivneva L. N. 2021. Monarchies and Republics of the Arab East in the Aftermaths of

"Arab Spring." In Proceedings of the XXIV International Scientific and Practical

Conference. RS Global Conferences. https://doi.org/10.31435/rsglobal\_conf/25122020/7306.

Polak, M., Ziegler, D., Bockelman, D., Schmidt, M., Zimmermann, E. 2018. "40

Years of German-Jordanian Technical Cooperation in the Water Sector." Deutsche

Gesellschaft für Internationale Zusammenarbeit (GIZ). Accessed 22 May 2024.

https://www.susana.org/en/knowledge-hub/resources-and-publications/library/details/3520.

Quentin Wodon & Andrea Liverani & George Joseph & Nathalie Bougnoux. 2014.

"Climate Change and Migration : Evidence from the Middle East and North Africa." World

Bank Group, number 18929, December. https://ideas.repec.org/b/wbk/wbpubs/18929.html.

Ramezani, Mohammadreza, Leili Abolhassani, Naser Shahnoushi Foroushani, Diane Burgess, and Milad Aminizadeh. 2022. "Ecological Footprint and Its Determinants in MENA Countries: A Spatial Econometric Approach" *Sustainability* 14, no. 18: 11708.

https://doi.org/10.3390/su141811708

Randjbar-Daemi, S., Randjbar-Daemi, E., & Banko, L. (Eds.). 2019. *Political Parties in the Middle East* (1st ed.). Routledge. <u>https://doi.org/10.4324/9780429422706</u>. Redfern, Jonathan, and Jonathan Craig. 2010. "Middle East and North Africa: Overview." In *Geological Society, London, Petroleum Geology Conference Series*, 7:671– 671. https://doi.org/10.1144/0070671.

Sachs, J.D., Lafortune, G., Fuller, G., Drumm, E. 2023. "Implementing the SDG Stimulus. Sustainable Development Report 2023." *Dublin: Dublin University Press*. 10.25546/102924

Salloukh, Bassel F. 2013. "The Arab Uprisings and the Geopolitics of the Middle East." The *International Spectator* 48 (2): 32–46.

https://doi.org/10.1080/03932729.2013.787830.

Saraisky, Nancy Green. 2016. "Analyzing Public Discourse: Using Media Content Analysis to Understand the Policy Process." Current Issues in Comparative Education 18 (1): 26–41.

Seibel, Hans. 2001. "Jordan: Reform of the Agricultural Credit Corporation (ACC),

2001." Near East – North Africa Regional Agricultural Credit Association (NENARACA).

Solomon, Hussein, and Arno Tausch. 2021. "Failing States and Losing Sovereignty? Reflecting on the State and Politics in the MENA Region." In *Arab MENA Countries: Vulnerabilities and Constraints Against Democracy on the Eve of the Global COVID-19 Crisis*, edited by Hussein Solomon and Arno Tausch, 11–33. Singapore: Springer Singapore. https://doi.org/10.1007/978-981-15-7047-6\_2.

Sowers, Jeannie, Avner Vengosh, and Erika Weinthal. 2011. "Climate Change, Water Resources, and the Politics of Adaptation in the Middle East and North Africa." *Climatic Change* 104 (3): 599–627. https://doi.org/10.1007/s10584-010-9835-4.

Steinmetz, Jay. 2019. "Comparative Politics," Chapter in Politics, Power, and Purpose: An Orientation to Political Science. Fort Hays State University.

https://fhsu.pressbooks.pub/orientationpolisci/.

Suleiman, Rebhieh. 2003. "The Historical Evolution of the Water Resources Development in the Jordan River Basin in Jordan." International Water Management Institute.

Tahir, Muhammad, and Muhammad Mumtaz Khan. 2024. "Do Natural Resources Invite Terrorism: Evidence from Resource-Rich Region." *Journal of Economic and Administrative Sciences* ahead-of-print (ahead-of-print). <u>https://doi.org/10.1108/JEAS-01-</u> 2023-0024.

Takian, Amirhossein, Arefeh Mousavi, Martin McKee, Vahid Yazdi-Feyzabadi, Ronald Labonté, Viroj Tangcharoensathien, Ruairí Brugha, et al. 2022. "COP27: The Prospects and Challenges for the Middle East and North Africa (MENA)." *International Journal of Health Policy and Management* 11 (12): 2776–79.

https://doi.org/10.34172/ijhpm.2022.7800.

Talbot, Valeria. 2012. "The Gulf Monarchies in a Changing MENA Region." *Instituto Per Gli Studi Di Politica Internazionale*, no. 139. Accessed May 8, 2024. www.ispionline.it/sites/default/files/pubblicazioni/analysis\_139\_2012.pdf.

The Nexus Resource Platform. 2022. "The WEF Nexus Index." Accessed 5 May 2024. <u>https://www.water-energy-food.org/resources/tool-wef-nexus-index</u>.

World Bank Group. "Middle East and North Africa climate roadmap (2021-2025): Driving transformational climate action and green recovery in MENA." Accessed 21 May 2024. <u>https://www.preventionweb.net/publication/middle-east-and-north-africa-climate-</u> <u>roadmap-2021-2025-driving-transformational-climate</u>.

World Bank Group. 2022. "Jordan Country Climate and Development Report." Accessed 20 May 2024. <u>https://www.worldbank.org/en/country/jordan/publication/jordan-</u> <u>country-climate-and-development-report</u>. World Bank Group. 2022. "Morocco Country Climate and Development Report." Accessed 20 May 2024.

https://www.worldbank.org/en/country/morocco/publication/morocco-country-climate-anddevelopment-report.

World Bank Open Data. "Employment in agriculture (% of total employment)

(modeled ILO estimate) – Jordan." Accessed 13 May 2024.

https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS?locations=JO.

World Bank. "Agriculture, forestry, and fishing, value added (% of GDP) - Morocco." World Bank and OECD. Accessed May 19, 2024,

https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS?locations=MA.

V-DEM Variable Graph. "Access to Public Services Distributed by Urban-Rural Location." Accessed 20 May 2024. <u>https://v-dem.net/data\_analysis/VariableGraph/</u>.

Vakhshouri, Sara. 2011. "Measuring the Effect of Political Instability in Middle East and North Africa on Global Energy Security." *USAEE Working Paper* No. 30, Available at SSRN: <u>https://ssrn.com/abstract=1944628</u>

Venot, Jean-Philippe, Rémy Courcier, et François Molle. "A Brief History of Water Use in Jordan." In *Atlas of Jordan*, édité par Myriam Ababsa. Beyrouth: Presses de l'Ifpo, 2013. <u>https://doi.org/10.4000/books.ifpo.5054</u>.

Waha, Katharina, Linda Krummenauer, Sophie Adams, Valentin Aich, Florent Baarsch, Dim Coumou, Marianela Fader, et al. 2017. "Climate Change Impacts in the Middle East and Northern Africa (MENA) Region and Their Implications for Vulnerable Population Groups." *Regional Environmental Change* 17 (6): 1623–38. <u>https://doi.org/10.1007/s10113-</u> 017- 1144-2.

Wasimi, Saleh A. 2010. "Climate Change in the Middle East and North Africa (MENA) Region and Implications for Water Resources Project Planning and Management." International Journal of Climate Change Strategies and Management 2 (3): 297–320. https://doi.org/10.1108/17568691011063060.

WEF Index in the MENA Region 2023." WEF Nexus Index. Accessed 17 May 2024. https://wefnexusindex.org.

Yildirim, A. Kadir, Zhang, Elanie. 2021. "The Party of Justice and Development and Post-2011 Economic Policymaking in Morocco." Baker Institute. Accessed May 8, 2024. <u>https://www.bakerinstitute.org/research/party-justice-and-development-and-post-2011-</u> economic-policymaking-morocco.

Zoppolato, Davide Giacomo, and Shisong Jiang. 2023. "China-MENA Energy Cooperation under the Belt and Road Initiative: Megaprojects, Economic Planning, and a Pragmatic Approach to the 'Green' Transition." *The Journal of World Energy Law & Business* 16 (2): 143–59. <u>https://doi.org/10.1093/jwelb/jwac042</u>.

## **Appendix 1: List of Figures**



Figure 1. Climate change is a threat multiplier in the MENA region. World Bank Group. "Middle East and North Africa climate roadmap (2021-2025): Driving transformational climate action and green recovery in MENA". Accessed 21 May 2024. https://www.preventionweb.net/publication/middle-east-and-north-africa-climate-roadmap-2021-2025-driving-transformational-climate.



Figure 1."WEF Index in the MENA Region 2023." WEF Nexus Index. Accessed 17 May 2024. https://wefnexusindex.org.



Figure 3. "Morocco and Jordan Water Stress Differences in 2021." Food and Agriculture Organization. Accessed 16 May 2024. Exported from UN-Water <u>https://www.sdg6data.org</u>



Figure 4. "Agriculture, forestry, and fishing, value added (% of GDP) - Morocco." World Bank and OECD. Accessed May 19, 2024, <u>https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS?locations=MA</u>.



Figure 5. V-DEM Variable Graph. "Access to Public Services Distributed by Urban-Rural Location." Accessed 20 May 2024. <u>https://v-dem.net/data\_analysis/VariableGraph/</u>.

## **Appendix 2: List of Interviews**

	Position	Place	Date
Interview 1	Project Coordinator for Green Growth	Online	10 May 2024
Interview 2	PhD Student at the Central European University	Online	10 May 2024
Interview 3	Freelance Journalist	Online	12 May 2024
Interview 4	Programme Advisor, UNDP	Online	13 May 2024
Interview 5	Senior Advisor at SustainMENA and an expert on Green Economy and Climate in Jordan	Online	15 May 2024
Interview 6	Regional Climate Change Specialist, UNDP	Online	16 May 2024
Interview 7	Senior Technical Advisor, UNDP	Online	17 May 2024
Interview 8	Research Assistant, UNDP	Online	18 May 2024
Interview 9	Regional Sustainable Energy Specialist, UNDP	Online	19 May 2024
Interview 10	National Project Officer for Jordan, UNDP	Online	20 May 2024
Interview 11	Project Coordinator for Jordan, UNDP	Online	20 May 2024

Interview 12	Project Manager for	Online	21 May 2024
	NAP GCF		

During the interview, that was main three questions were asked:

- 1) Please introduce yourself and the project/area you are working on?
- 2) What opportunities and challenges do you see in the climate policy landscape (based on the aspects of resources, governance and regional cooperation)?
- 3) How do you see that connected to water, food, and security?
- 4) What is the future outlook?

The flow of the conversation was tailored to the individuals' experience and expertise. Based on the discussion, complementary questions would follow.

## **Appendix 3: List of Newspapers**

Africa Renewal, Agence Marocaine De Presse, Agency Tunis Afrique Press, Agriculture Monitor Worldwide, Al Arab Weekly, AmmanNet, Arab News Digest, Bahrain News Gazette, Business Monitor Online, Campaign Middle East, Ce Notias Financieras English, Chemicals Monitor Worldwide, Climate Change Daily News, Daily Independent, El Pais English, Energy Monitor, Energy Update, ENP Newswire, Eurasia Review, FinancialWire, Food And Agriculture, Impact News, Intellinews – MENA Today, Iraq News Gazette, Jordan News Agency, Kazakhstan Government New, Khaleej Times, Law Update, MENAFN – Business and Finance, Newstex Blogs China Dialogue, States News Service, Targeted News Service, TendersInfo, Thai News Service, The Balochistan Times, The Daily Telegraph, The Jordan Times, The New Arab, Trade Arabia, Ech Chorouk El Yaoumi, Utilities Monitor Worldwide

It is important to note that, due to time limitations, these newspaper were selected on the first availability basis that matched the selection criteria and were offered by Nexis Uni.