

Majid Asadnabizadeh

**Meta-events:  
The tale of the outbreak of the Arab Spring  
and the connection with climate change**

**Abstract**

The revolution in the Arab world, the wave of attempts by individuals to establish genuine democracy that began between 2010 and 2011 in one of the most sensitive regions of the world, the Middle East, and North Africa (MENA), challenged some of the region's entrenched autocratic political structures. The region is warming twice as fast as the global average due to the effects of climate change. Yields are expected to decline, and food production is expected to be disrupted in many areas, increasing food prices and market volatility. Limited efforts by governments to address this had increased the likelihood of political instability in previous years.

This study thus attempts to establish a real and logical connection between the Arab Spring and the effects of climate change. The Arab Spring has shown that political instability is partly triggered by people's basic needs for materials such as food and water. Climate change could therefore be a trigger for this meta-event. This study addresses this issue using the method of event extraction. This paper argues that climate change and its impact on the lives of people in the region allow for a reasonable claim that this phenomenon is related to the Arab Spring, as it is primarily due to food and water stress.

**Keyword:** Arab spring, Climate change, Middle East, North Africa

## Introduction

The tensions in the Arab world in 2010-2011 have been portrayed in the field of international relations as a series of loosely linked national stories that occurred one after the other, but whose successes and challenges depended largely on internal factors, based on the ideas of Lynch<sup>1</sup>. Some prominent social, political and Middle East scholars, such as Gregory Gause III, have been early and productive in addressing the question of what lessons the Arab Spring has taught for the academic study of socio-political issues in the Middle East. However, there is a danger that a thorough debate on the Arab Spring could be hampered by a defensive stance. The predictive power of other disciplines (such as economics) is also rather modest (e.g. in predicting the recent global financial crisis). Moreover, the most important task of the social sciences is not to make predictions, but to describe and explain actors and their behaviour.

The tensions in the Arab world can be described as a collection of unrest involving several purely Muslim countries from Tunisia, Morocco, Syria, Libya, Egypt to Bahrain. The term Arab World Spring is a reference to the tensions of 1848 known as the „People’s Spring” – when another part of the world, Europe, was conquered as an outdated example of this case of political revolution. Since then, the term „spring” has been used to explain freedom and democracy movements such as the „Prague Spring” in Czechoslovakia in 1968. The Western press began circulating the term „Arab Spring” in 2011<sup>2</sup>. Tensions began when demonstrations in some countries, such as Tunisia and Egypt, overthrew their political systems in quick succession, leading to similar situations in other parts of that region. However, the protest movement was not successful in all systems and individuals expressing and demanding their political and economic grievances were often violently put down by the security forces of their regimes. The Arab Spring began in December 2010 when Tunisian street vendor Mohammed Bouazizi set himself on fire to show his anger and protest the arbitrary seizure of his fruit and vegetable stall by the regime (police) because he did not have a permit<sup>3</sup>.

In recent years, some political scientists have made valuable advances in assessing the success or challenges of insurgencies in individual states in terms of country-specific characteristics<sup>4</sup>, such as the nature of indigenous or national

<sup>1</sup> M. Lynch, *The Arab Uprisings as International Relations* [17 IX 2015], <https://www.washingtonpost.com/news/monkey-cage/wp/2015/09/17/the-arab-uprisings-as-international-relations/> (5 X 2022). For more information see: J. Brownlee, T. Masoud, A. Reynolds, *The Arab Spring*, New York 2015.

<sup>2</sup> E. Blakemore, *What Was the Arab Spring and what Caused it to Happen?* [29 III 2019], <https://www.nationalgeographic.com/culture/article/arab-spring-cause> (5 X 2022).

<sup>3</sup> *Arab Spring* [17 I 2020], <https://www.history.com/topics/middle-east/arab-spring> (5 X 2022).

<sup>4</sup> K. Gleditsch, *Transnational Dimensions of Civil War*, „Journal Of Peace Research” 2007, vol. 3,

organisations, the nature of opposition movements, wise or bad actions by leaders, and access to oil revenues<sup>5</sup>. Gleditsch, in a study *Transnational Dimensions of Civil War* argues that civil wars in the Middle East are primarily related to country-specific factors or processes that take place within individual states experiencing conflict. However, many contemporary civil wars have a transnational character, where actors, resources, and events cross national borders<sup>6</sup>. Buhaug and Gleditsch argue in another study that there is a real neighbourhood effect of armed conflict that goes beyond what individual country characteristics can explain when we assess specific parts of the world like the Middle East<sup>7</sup>. Albrecht & Schlumberger have looked at the issue somewhat differently. They argue that Middle Eastern countries have problems with the democratisation process due to some factors such as legitimacy, elites and institution building<sup>8</sup>. Lu & Thies believe that the international wars and civil wars in Middle Eastern countries between 1960 and 2003 endangered state-building in the Middle East and laid the first roots for the Arab Spring<sup>9</sup>.

While in the field of social sciences, especially international relations, scientific enquiry and comparative policy study, the analysis of the Arab uprisings and their aftermath show theoretical advances with sophisticated empirical analyses, theorists, and researchers in the specific field of social sciences, namely international relations, have studied and considered the phenomenon of climate change much less. For example, in a study *Drivers of Tolerance in Post-Arab Spring Egypt: Religious, Economic, or Government Endorsements?* the authors highlight that the problem of the Arab Spring is due to political tolerance in society<sup>10</sup>. In a recent study *Response of the Arab World to the Challenges of Climate Change and the Paris Agreement* the authors note that most Arab countries are heading for serious water scarcity due to deteriorating water supplies and growing water demand<sup>11</sup>. Thus, the main question of this study is therefore what role and function climate change has actively played in the Arab tensions.

---

no. 44; H. Buhaug, K. Gleditsch, *Contagion or Confusion? Why Conflicts Cluster in Space*, „International Studies Quarterly” 2008, vol. 2, no. 52.

<sup>5</sup> H. Albrecht, O. Schlumberger, „Waiting for Godot”: *Regime Change Without Democratization in the Middle East*, „International Political Science Review” 2004, vol. 4, no. 25; L. Lu, C. Thies, *War, Rivalry, and State Building in the Middle East*, „Political Research Quarterly” 2012, vol. 2, no. 66.

<sup>6</sup> K. Gleditsch, *op.cit.*

<sup>7</sup> H. Buhaug, K. Gleditsch, *op.cit.*

<sup>8</sup> H. Albrecht, O. Schlumberger, *op.cit.*

<sup>9</sup> L. Lu, C. Thies, *op.cit.*

<sup>10</sup> M. Hassan, M. Shalaby, *Drivers of Tolerance in Post-Arab Spring Egypt: Religious, Economic, or Government Endorsements?*, „Political Research Quarterly” 2018, vol. 2, no. 72.

<sup>11</sup> S. Djoundourian, *Response of the Arab World to Climate Change Challenges and the Paris Agreement*, „International Environmental Agreements: Politics, Law And Economics” 2021, vol. 3, no. 21.

## **The method of event extraction: is the method of research really a useful tool?**

The early studies on the tensions in the Arab world mainly focus on the use of narratives to understand the phenomena, but this method, which has evolved, can only find the database that is politically or economically well reorganised. Other academic studies show that the use of literatures is useful to understand different aspects of the Arab Spring (e.g. the social ones). However, these do not take into account the accurate extraction of events and tensions. In the field of international relations, especially security issues (e.g. climate change), we need to combine the structure of studies with the extraction of events to facilitate the identification of information and its assessment<sup>12</sup>.

It is important to note that the inclusion/exclusion criteria approach is a useful tool to understand how the literature was selected and to later extend the method of extraction<sup>13</sup>. The author of this study decided to take this approach by searching Google Scholar and finding about  $n = 100$  studies right off the bat. Because of this large number, the author decided to search per search term in Google Scholar and related sources. The author then removed the duplicate information and phrases and additionally analysed other related resources such as websites and reports. Finally, the author found the resources that have an accurate signal for this research and the main question (see section 5,  $n = 17$ ). In order to provide a better overview and assessment of the extraction and understanding of international relations studies that specifically address security issues, I use domain-specific features (i.e. climate change issues) in this study<sup>14</sup>. I use the method of event extraction (e.g. The Arab Spring), event element extraction (e.g. politics and economics) and relationship extraction between event techniques (e.g. to capture the relationship between global Arab tensions and climate change).

---

<sup>12</sup> S. Ananiadou et al., *Event Extraction for Systems Biology by Text Mining the Literature*, „Trends in Biotechnology” 2010, vol. 7, no. 28; B. Su, *Feature Extraction Based on Collaborative Representation and Fuzzy Progressive Maximal Marginal Embedding*, „Journal of Computer Applications” 2013, vol. 6, no. 33.

<sup>13</sup> I. Levin, M. Huneke, J. Jasper, *Information Processing at Successive Stages of Decision Making: Need for Cognition and Inclusion–Exclusion Effects*, „Organizational Behavior And Human Decision Processes” 2000, vol. 2, no. 82; J. Steyaert, *Web-Based Higher Education: The Inclusion/Exclusion Paradox*, „Journal Of Technology In Human Services” 2005, vol. 23, no. 1/2.

<sup>14</sup> E. Poitras, S. Lajoie, *A Domain-Specific Account of Self-Regulated Learning: The Cognitive and Metacognitive Activities Involved in Learning Through Historical Inquiry*, „Metacognition and Learning” 2013, vol. 3, no. 8; M. Zadahmad et al., *DSMCompare: Domain-Specific Model Differencing for Graphical Domain-Specific Languages*, „Software and Systems Modeling” 2022, vol. 5, no. 21.

## The Arab Spring: Political and Economic Instability Really First?

This section of the study focuses on the extraction and identification of events and one very clear and genuine aspect – the extraction of event elements – of the Arab Spring. The identification of the elements of the event includes both political and economic criteria in order to understand the relationship amidst these factors and the uprisings in the Middle East and North Africa (MENA) region. The novelty of the method, techniques and evaluation proposed here lies in the coverage of the different areas of the literature, which contains carefully elaborated political and economic features for this section. These features focus on extracting contextual data by understanding the perspective(s) of the documents (i.e. literature) included. These factors are also used to identify event relationships for the evaluation of the next section.

The political and economic tensions in the Arab world have created a whole new atmosphere and thus new centres of instability in the Middle East and North Africa<sup>15</sup>. Although the region of the Arab world has long been one of the most undemocratic, war-prone, politically and economically underdeveloped, it has not stopped the slow advance of globalisation and modernity. Thanks to improved education, training and new international communication technologies such as the internet, Arab societies are increasingly aware of the many plaguing shortcomings in their states and territories. Despite the presence of natural resources such as oil and some limited reforms that have modestly raised the general standard of living, these reforms have failed to fulfil the political and economic aspirations of their bloated and mostly young populations in this region of the world<sup>16</sup>. Most notable were the tensions in one of the Arab states, namely Tunisia in December 2010, which culminated a month later in the departure of the ruler Ben Ali Al Zine to another region, Saudi Arabia<sup>17</sup>. Protests followed, leading to the overthrow of another Arab world figure, Mubarak, in February 2011. The collapse of the seemingly impenetrable rule of the Egyptian autocrat sent even deeper political shock waves throughout the Arab region. In Syria, mass protests erupted in March 2011 demanding an end to the decades-long rule of the Assad family and its policies, and in Libya, demonstrations against Muammar Gaddafi spread across the country in Benghazi in February, finally culminating

---

<sup>15</sup> P. Jones, *The Arab Spring. International Journal*, „Canada’s Journal of Global Policy Analysis” 2012, vol. 2, no. 67.

<sup>16</sup> S. Helfont, T. Helfont, *Jordan: Between the Arab Spring and the Gulf Cooperation Council*, „Orbis” 2012, vol. 1, no. 56.

<sup>17</sup> R. Lefèvre, *Tunisia: a Fragile Political Transition*, „The Journal of North African Studies” 2015, vol. 2, no. 20.

in the capture and killing of Gaddafi in October 2011<sup>18</sup>. In another Arab country, Yemen, another protest against the 30-year rule of Ali Abdullah Saleh began in January 2011, culminating in his official overthrow in February 2012. However, as in Syria and Libya, political tensions have plunged the country into a protracted civil war, the outcome of which is very difficult to predict<sup>19</sup>.

For further evaluation based on the methodology, I consider factors (e.g. the range of functions). To identify the events (i.e. literature(s)), features corresponding to the Arab Spring are created. Each feature is referred to as a main analytical criterion. Using this method, the factors were formed after evaluating document samples to identify a specific point. A total of 2 factors were identified and elaborated (Tab. 1).

**Table 1.** Factors of the outbreak of the Arab Spring and summary description of the individual points

Factor No.	Factor Name	Factor Description
1	Political	If the political system is the document or not
2	Economic	If in the literature in which the Arab Spring is thematised, economic

Source: Author's own construction

A unifying idea of these tensions in the Arab region was the demand for more political atmosphere and participation, greater civil liberties and the end of autocratic regimes, which were often associated with the rule of certain individuals and families<sup>20</sup>. As with most upheavals, the younger generation (i.e. people) played a disproportionate role in organising and participating in the demonstration<sup>21</sup>. In addition to political needs, demonstrators also articulated significant grievances against the economic system and its associated problems, which was perceived as increasingly unjust and inadequate to meet the basic employment

<sup>18</sup> C. Glahn, *EU Neighbourhood Policy in the Maghreb: Implementing the ENP in Tunisia and Morocco Before and After the Arab Uprisings*, „Journal of Contemporary European Studies” 2019, vol. 1, no. 27.

<sup>19</sup> A. Aisen, F. Veiga, *Does Political Instability Lead to Higher Inflation? A Panel Data Analysis*, „SSRN Electronic Journal” 2005.

<sup>20</sup> N. Al-Shammari, J. Willoughby, *Determinants of Political Instability Across Arab Spring Countries*, „Mediterranean Politics” 2017, vol. 2, no. 24.

<sup>21</sup> P. Abbott, A. Teti, R. Sapsford, *The Tide That Failed to Rise: Young People's Politics and Social Values in and After the Arab Uprisings*, „Mediterranean Politics” 2018, vol. 1, no. 25.

and consumption needs of many citizens. The uprising in the Arab region seemed to be an opportunity for the main Arab nations to create a more open and democratic political system or regime<sup>22</sup>. Some economic criteria related to this instability of the region are less known than this political chronology<sup>23</sup>. First, the MENA region is one of the largest food importers in the world, with more than 50 per cent of the food consumed in the MENA region coming from outside the region<sup>24</sup>. This means that the region of the Arab world is more or less affected by economic problems and shocks due to fluctuations in food prices than other major regions of the world. Second, the Arab World region faces unusually high unemployment and a weak labour market for its population, which affects the labour force as a whole, especially the younger labour force<sup>25</sup>. For example, the unemployment rate in the Arab world and eastern region is over 12 per cent, more than double the global average rate of 6 per cent<sup>26</sup>.

Such a high unemployment rate in this region represents a major missed opportunity for greater development and the promotion of development in all sectors of the economy. Moreover, unemployment among the younger generation in Libya, Tunisia and Egypt was both unusually high and dramatically rising in the period leading up to the Arab Spring<sup>27</sup>. Nevertheless, the author believes that the issue of climate change can be considered as one of the biggest challenges and problems in the Middle East and North Africa in the field of climate policy and future academic study. Therefore, the author's aim in the next section is to provide a brief overview based on research and professional articles to facilitate the analysis.

---

<sup>22</sup> S. Heydemann, *Explaining the Arab Uprisings: Transformations in Comparative Perspective*, „Mediterranean Politics” 2015, vol. 1, no. 21.

<sup>23</sup> T. Yousef, N. Dhillon, *Generation in Waiting: The Unfulfilled Promise of Young People in the Middle East*, Washington 2009.

<sup>24</sup> M. Aksoy, J. Beghin, *Global Agricultural Trade and Developing Countries*, World Bank, Washington 2005; A. Vasileska, G. Rechkoska, *Global and Regional Food Consumption Patterns and Trends*, „Procedia: Social and Behavioural Sciences” 2012, no. 44.

<sup>25</sup> N. Al-Shammari, J. Willoughby, *op.cit.*

<sup>26</sup> G.J. Abed, H.R. Davoodi, *Challenges of Growth and Globalization in the Middle East and North Africa* [2003], <https://www.imf.org/external/pubs/ft/med/2003/eng/abed.htm>; P.-R. Agénor, M.K. Nabli, T.M. Yousef, *Public Infrastructure and Private Investment in the Middle East and North Africa*, „World Bank. Policy Research Working Paper” 2005, no. 3661.

<sup>27</sup> D. Silverman, *The Arab Military in the Arab Spring: Agent of Continuity of Change? A Comparative Analysis of Tunisia Egypt Libya and Syria*, „SSRN Electronic Journal” 2012; S. Hess, *From the Arab Spring to the Chinese Winter: The Institutional Sources of Authoritarian Vulnerability and Resilience in Egypt Tunisia and China*, „International Political Science Review” 2013, vol. 3, no. 34.

## The Climate Change Roadmap: The Challenges and Problems of the Arab World Region

Climate change is one of the hectic issues of this decade. Climate change is a widely accepted reality of the current status quo. Climate change is anticipated to confront the global community with numerous problems (e.g., global warming). The impact of global warming, with its enormous economic impact on communities and individuals, is one of the major challenges facing the world due to climate change<sup>28</sup>. The trigger of climate change is global warming shaped by man-made emissions of CO<sup>2</sup>, methane and other long-lived gases. Warming is happening everywhere, and temperatures are increasing in different regions of the world<sup>29</sup>. Information from earlier eras points to conditions on ground and global warming that can be analogues to a future globe with more CO<sup>2</sup>. The problem of climate change could become a little more difficult when CO<sup>2</sup> affects temperatures, resulting in changes in ocean circulation and terrestrial ecosystems<sup>30</sup>. Furthermore, the rise in the time or type of extreme events is commonly associated with climate change due to anthropogenic emissions and impacts of greenhouse gases and related gases.

The Intergovernmental Panel on Climate Change (IPCC) summarises that there is consensus that the more in atmospheric greenhouse gases (CO<sup>2</sup>) will lead to a change in climate, resulting in a rise in sea level and an increase in the frequency of extreme climate phenomena, including violent storms, heavy rainfall and droughts<sup>31</sup>.

Climate change has regional criteria and impacts. Based on the findings of the IPCC Working Group II, the link between trends in the physical and biological atmosphere and the regional impacts of climate change has strengthened dramatically<sup>32</sup>. Assessing the impacts and benefits of climate models by region: The scientific paper *Prudence* argues that the value of regional climate change impacts is generally due to data from global atmospheric-oceanic general circulation models (AOGCMs), which have not been able to determine the magnitude of these impacts<sup>33</sup>. A review paper by Shepherd et al. shows that human-induced climate change is real when it comes to assessing the value and speed of regional impacts

---

<sup>28</sup> R. Namdar, E. Karami, M. Keshavarz, *Climate Change and Vulnerability: The Case of MENA Countries*, „ISPRS International Journal of Geo-Information” 2021, vol. 11, no. 10.

<sup>29</sup> A. Brown, *Climate Change and Africa*, „Nature Climate Change” 2015, vol. 9, no. 5.

<sup>30</sup> M. McNutt, *Climate Change Impacts*, „Science” 2013, vol. 6145, no. 341.

<sup>31</sup> S.L. Kusangaya et al., *Impacts of Climate Change on Water Resources in Southern Africa: A Review*, „Physics And Chemistry of The Earth” 2014, A/B/C.

<sup>32</sup> G. Suiça, *Climate Change 2001: Impacts Adaptation and Vulnerability*, „Choice Reviews Online” 2002, vol. 6, no. 39.

<sup>33</sup> J. Christensen et al., *Evaluating the Performance and Utility of Regional Climate Models: The PRUDENCE Project*, „Climatic Change” 2007, vol. 1, no. 81.



and opportunities for action<sup>34</sup>. The shortcomings of these probabilistic frameworks for the physical criteria of climate change quickly become apparent when analysing climate policy in general. Since the 1980s, scientific research on climate change has emphasised that the expected changes could have significant impacts on all regions of our globe. Due to the strategic location of the Arab world, namely the Middle East and North Africa, this part is a hotspot for researching and exploiting the effects of climate of our change. Some of the academic studies describe the impact of our climate on the air, crops and public perception. They argue that this part of the globe will experience strong climate change impacts (i.e., extreme climate events)<sup>35</sup>. A similar study suggests that the Arab part of the world will be more affected by climate change in the future than the standard global statistic. Furthermore, extreme climate events will have bold impacts on water and energy supplies throughout the Arab world<sup>36</sup>. The observations of a fundamental work of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC) for this part of the globe reveal a sharp rise in the volume of extreme high temperatures and the index duration of warm epochs since recent years, 1960s<sup>37</sup>. Therefore, the author of this study argues that change of the climate in this part of the world will have an impact on mineral resources, sea levels, biodiversity<sup>38</sup>, health of peoples<sup>39</sup>, food and material production<sup>40</sup>, use of ground and urban development, and tourism<sup>41</sup>. Each of these threats poses extraordinary challenges to governance and progress and, above all, requires states to make efforts to mitigate their wrong actions and dangerous effects. Given this, the role of political and economic problems is only one side of this story, and the effects of climate change is another important tool in the conflicts in the MENA region by 2010-2011.

<sup>34</sup> T. Shepherd et al., *Storylines: An Alternative Approach to Representing Uncertainty in Physical Aspects of Climate Change*, „Climatic Change” 2018, vol. 3-4, no. 151.

<sup>35</sup> P. Lionello et al., *The Climate of the Mediterranean Region: Research Progress and Climate Change Impacts*, „Regional Environmental Change” 2014, vol. 5, no. 14.

<sup>36</sup> M. Lange, *Impacts of Climate Change on the Eastern Mediterranean and the Middle East and North Africa Region and the Water-Energy Nexus*, „Atmosphere” 2019, vol. 8, no. 10.

<sup>37</sup> K. Waha et al., *Climate Change Impacts in the Middle East and Northern Africa (MENA) Region and Their Implications for Vulnerable Population Groups*, „Regional Environmental Change” 2017, vol. 6, no. 17.

<sup>38</sup> G. Zittis, J. Lelieveld, *Eastern Mediterranean and Middle East Face Rapid Climate Change*, „Eos” 2022, no. 103; J. Scheffran, A. Battaglini, *Climate and Conflicts: The Security Risks of Global Warming*, „Regional Environmental Change” 2011, vol. 1, no. 11.

<sup>39</sup> M. Salimi, S. Al-Ghamdi, *Climate Change Impacts on Critical Urban Infrastructure and Urban Resiliency Strategies for the Middle East*, „Sustainable Cities And Society” 2020, no. 54.

<sup>40</sup> S. Cousins, *Climate and Instability Threatens Water and Food Supplies in the Middle East* [23 IV 2014], <https://www.natureasia.com/en/nmiddleeast/article/10.1038/nmiddleeast.2014.99> (5 X 2022).

<sup>41</sup> A. Misra, *Climate Change and Challenges of Water and Food Security*, „International Journal Of Sustainable Built Environment” 2014, vol. 1, no. 3.

## **Beyond the Arab world Spring: Is climate change really a direct factor?**

This part of the study consists of an evaluation of event relation extraction. The relationship extraction technique is part of comprehension the link between tensions in the Arab world and the impact of climate change. After the review and preliminary assessment, the author highlights the identification and especially the extraction of the relevant arguments (ARGs) of the event and linkages (Arab Spring and climate change). I did two searches in Google Scholar 2010 to 2022. I focused on searching for the impact of climate change on the Arab world. The keywords in this first search were climate, climate change, Arab world, spring, MENA. In the second search, I included terms related to climate change in the Middle East to find information about the uprising. The full word search was: (climate, climate change, Arab world, MENA or Middle East-North Africa, Arab Spring). The author started screening the papers and eliminated irrelevant studies and reports such as geography (n = 100). The (n = 45) remaining studies were carefully reviewed and analysed in depth. Many more literatures were discarded based on the above criteria, leaving (n = 17) relevant literatures. The author describes the immediate factor as the specific variable linking the tensions and instability in the Arab world to the problem of climate change. Comprehension the link amidst the problem of the Arab world and climate change is an interesting dichotomy for the field of politics, environmental issues and the politics of climate change. Based on my research and assessment in terms of methodology, the author has found several studies that address this issue from diverse range of angles. In one study, for instance, researchers explain that the impact of global climate change on weather and food supply is enough to trigger an outbreak in MENA and create political or economic problems for established governments<sup>42</sup>. They suggest that famine caused by weather-related events (i.e., climate change) over time is behind the riots in the Arab world, which has led to a rise in the price of wheat and at the same time increased food prices. A similar study by Ines Perez examined the impact of global warming on food supply and its contribution to the Arab revolution<sup>43</sup>. The third study I examined looked at the impact of climate change on revolution in the Arab world through two factors: Food and water stress<sup>44</sup>. This research explains that the Arab Spring was triggered by food and water issues but also by political and economic pressures. Environmental

<sup>42</sup> S. Johnstone, J. Mazo, *Global Warming and the Arab Spring*, „Survival” 2011, vol. 2, no. 53.

<sup>43</sup> I. Perez, *Climate Change and Rising Food Prices Heightened Arab Spring* [4 III 2013], <https://www.scientificamerican.com/article/climate-change-and-rising-food-prices-heightened-arab-spring/> (5 X 2022).

<sup>44</sup> T.L. Friedman, *The Other Arab Spring* [7 IV 2012], <https://www.nytimes.com/2012/04/08/opinion/sunday/friedman-the-other-arab-spring.html> (5 X 2022).

scientists believe that the tensions in this part of the world have little to do with food and water problems, but with stress (e.g., climate change)<sup>45</sup>. They argue that climate change can easily undermine food security and economic instability. Social unrest, uprisings such as the Arab revolution, are partly due to an unsuccessful attempts to meet the most important needs of the population. As the region's population grows and the need for food and water increases, it quickly becomes difficult to meet these necessities of life. The change of climate exacerbates this situation through its passive impact on food and water resources. Therefore, climate change may be an indirect trigger of the Arab world Spring.

One author noted that the mineral resources factor was more important for the Arab Spring<sup>46</sup>. Water shortage and climate change and their effect on the food crisis were the triggers in this region of the world. Therefore, Shatanawi argues that the lack of good governance by the regimes in this part of the world and management have exacerbated the water crisis and food prices, and eventually caused the tensions in the Arab world. Despite earlier literature, some authors see the Arab Spring as a new signal of democracy. They wanted to shed light on the climate politics of democracy in the Arab Spring<sup>47</sup>. Other studies on the Chinese drought and its contribution to the issue of tensions in the Arab world have not found a similar trend. This academic research indicates that political and socio-economic incentives were the main cause of the crisis in the Arab world. Parameters such as extreme cost of living, poverty, and rising material prices to feed people were the main factors behind the Arab Spring<sup>48</sup>. Based on the study *Syria: Climate Change, Drought, and Social Unrest* the authors have pointed out that climate change is the main cause of unrest in the MENA region, especially in Syria. They argue that government mismanagement of natural resources for water and food, as well as climate change, are the most important reasons for the collapse of arable land in Syria and the uprising<sup>49</sup>. Sohail Inayatullah believes that the revolution in the MENA region is due to climate change affecting food prices and that, on the other hand, the dam is broken and no amount of shoring up can stop the flow of water<sup>50</sup>. To support this argument, another study *An Arab Spring*

<sup>45</sup> J. Schilling et al., *Climate Change Vulnerability Water Resources and Social Implications in North Africa*, „Regional Environmental Change” 2020, vol. 1, no. 20.

<sup>46</sup> M. Shatanawi, *The Arab Spring and Water Security*, „Proceedings of The International Association of Hydrological Sciences” 2015, no. 366.

<sup>47</sup> P. Fredriksson, E. Neumayer, *Democracy and Climate Change Policies: Is History Important?*, „Ecological Economics” 2013, no. 95.

<sup>48</sup> T. Sternberg, *Chinese Drought Bread and the Arab Spring*, „Applied Geography” 2012, no. 34.

<sup>49</sup> F. Femia, C.E. Werrell, *Syria: Climate Change, Drought and Social Unrest* [29 II 2012], [https://climateandsecurity.org/wp-content/uploads/2012/04/syria\\_climate-change\\_drought-and-social-unrest.pdf](https://climateandsecurity.org/wp-content/uploads/2012/04/syria_climate-change_drought-and-social-unrest.pdf) (5 X 2022).

<sup>50</sup> S. Inayatullah, *The Arab Spring: Whats Next?*, „World Affairs: The Journal of International Issues” 2011, vol. 3, no. 15.

argues that the revolutions in the MENA region are due to a triple crisis, namely climate change, food, and water supply<sup>51</sup>. Spyridon Plakoudas mentioned that climate change indirectly, albeit significantly, contributed to the outbreak of the successive political uprisings in the Arab world. In reality, climate change acted as a „force multiplier”, exacerbating the already severe political, socio-economic, and environmental problems of an arid and overpopulated region<sup>52</sup>.

Francesca De Châtel by 2014 argued that focusing on external factors such as drought and climate change in the context of the Syrian uprising is counterproductive, as it diverts attention from more fundamental political and economic motives behind the protests and shifts responsibility away from the Syrian government<sup>53</sup>. Another study in this area by Abrahams & Carr suggests that the problem of food and water availability at the national level in the MENA region caused the outbreak. This situation has led the rural population in this region to protest<sup>54</sup>. Ferré argue that the Middle East and North Africa (MENA) region faces major environmental threats<sup>55</sup>. Geographical features and arid and semi-arid climatic conditions there have led to a concentration of people in coastal areas and small valleys, resulting in pollution, a decline in per capita water resources, increasing soil erosion and food insecurity, and making climate change a challenge that has led to revolutions. The study *The Arab Spring in North Africa: Origins and Prospects* points out that one of the great ironies of the Arab Spring is the political and economic problems in this region<sup>56</sup>.

In another study by Ingeborg Toemmel, the authors argue that the Arab Spring in the MENA region is due to major policy changes in the established states. Other authors argue that the potential impacts of global climate change pose serious challenges to the MENA region, its economies, societies and its people. The author then categorised the studies using the following guidelines (Tab. 2): A = approach, B = is there a link between Arab tensions and the issue of climate change, C = authors or authors associated with climate change and the Arab Spring, D = a potential argument (ARG) identified, E = accurate points, F = flawed factor, G = data is unfounded.

<sup>51</sup> M. Dixon, *An Arab Spring*, „Review Of African Political Economy” 2011, vol. 128, no. 38.

<sup>52</sup> S. Plakoudas, *Causes of the Arab Spring: A Critical Analysis*, Center For International Strategic Analyses, „Research Paper” 2017, no. 7.

<sup>53</sup> F. de Châtel, *The Role of Drought and Climate Change in the Syrian Uprising: Untangling the Triggers of the Revolution*, „Middle Eastern Studies” 2014, vol. 4, no. 50.

<sup>54</sup> D. Abrahams, E. Carr, *Understanding the Connections Between Climate Change and Conflict: Contributions from Geography and Political Ecology*, „Current Climate Change Reports” 2017, vol. 4, no. 3.

<sup>55</sup> J. Ferré, *Environmental Activism In The Post-Arab Spring: It Is Not About A Mere Clean Environment* [2020], [https://www.iemed.org/wp-content/uploads/2020/12/Civil-Society-and-Social-Movements-in-the-EuroMediterranean-Region\\_.pdf#page=66](https://www.iemed.org/wp-content/uploads/2020/12/Civil-Society-and-Social-Movements-in-the-EuroMediterranean-Region_.pdf#page=66) (5 X 2022).

<sup>56</sup> G. Joffé, *The Arab Spring in North Africa: Origins and Prospects*, London 2013.

**Table 2.** A summary snapshot of the main event and ARGs

A	B	C	D	E	F	G
Approach	Event type	Author	ARG	Real	General	Other
Meta event	Climate change and Arab spring	Johnstone & Mazo, 2011	extreme weather and food supply		D	
Meta event	Climate change and Arab spring	Perez, 2013	food supply		D	
Meta event	Climate change and Arab spring	Friedman, 2012	food and water stress	D		
Meta event	Climate change and Arab spring	Schilling et al., 2020	food and water supplies	D		
Meta event	Climate change and Arab spring	Shatanawi, 2015	Water scarcity and food supply	D		
Meta event	Climate change and Arab spring	Fredriksson & Neumayer, 2013	climate politics of democracy		D	
Meta event	Climate change and Arab spring	Sternberg, 2012	high cost of living, poverty			D
Meta event	Climate change and Arab spring	Femia & Werrell, 2012	food and water supplies	D		
Meta event	Climate change and Arab spring	Inayatullah, 2011	food and water supplies	D		
Meta event	Climate change and Arab spring	Dixon, 2011	food and water supplies	D		
Meta event	Climate change and Arab spring	Plakoudas, 2017	force multiplier		D	
Meta event	Climate change and Arab spring	De Châtel, 2014	political and economic motives		D	
Meta event	Climate change and Arab spring	Abrahams & Carr, 2017	food and water supplies	D		
Meta event	Climate change and Arab spring	Ferré, 2020	food and water supplies	D		
Meta event	Climate change and Arab spring	Joffé, 2013	political and economic motives		D	
Meta event	Climate change and Arab spring	Toemmel, 2013	policy changes			D
Meta event	Climate change and Arab spring	Bayar & Youssef, 2014	Social and economic			D

Source: Author's own construction

The author summarises the feedback from the present research in the table below. I first examined the results of all contributed studies (17) and then focused more on those that identified either direct or immediate factors (D) based on the bold title of this section of the article. I then divided the ARG into three categories: (real), F (general), G (other). The author has identified  $n = 8$  studies that address the main factor (see: E for real arguments). In other words, to be more specific, of the 17 studies selected, 8 studies ( $17 > 8 = \text{true}$ ) used a true approach. The results for general (F) are similar for the  $n = 17$  studies. Of these  $n = 17$ , 6 can be used for general arguments ( $F = 11 \leq 6 = 5$ ). However, only  $n = 3$  study investigated the other factor (G) (3 literature or 0.51 of all 17). A different pattern to all datasets emerges as follows:  $P \times V1 = V2$  where V1 is the 17% and V2 is the results of the literatures percentage operation:

$$P = \frac{\%17}{14} = 2.38$$

The author argues that although more academic studies have shown a link between climate change and insurgencies in the MENA region, the direct (proximate factor here the author means) factor is a smaller one. The author found some evidence for the group of immediate factors, namely E (real), including food and water crisis, food and water supply and water scarcity and food supply. For the general factor (F), the author found a similar number of studies, but they did not follow the same patterns and arguments. The author was not able to find a genuine or general idea with any data, so the evaluation in this part and the conclusion in the following section are based on studies where genuine or genuine and general factors are backed-up.

## Conclusion

Understanding the signs of the impact of climate change is important to understanding the patterns and consequences of this phenomenon in the Arab world. It is often claimed that the uprisings and Arab unrest in the countries of this region of the global community were triggered by political and economic drivers. These factors or drivers are seen rather than the effects of climate change. The author's review for the present study revealed 17 main articles, 8 of which were partially related to the main topic. In addition, 3 study I examined for a link between climate change and the Arab Spring provided fewer signals. However, it was not enough for the author to support the rest of the analysis by this literature, but the amazing thing was to cover the proximal or direct factors. Including the proximal variables reduced the total amount of literature to be analysed to  $n = 6$ . Interestingly, there were  $n = 8$  studies that dealt with the main factor and  $n = 6$  studies on the general variables.

In the limited amount of literature, I have identified the main factors for the Arab Spring through the effects of climate change. These studies show that we cannot adequately assess and grasp the link between the Arab Spring and climate change, especially food and water stress. All in all, the author makes two recommendations for future research. First, in order to identify what exactly causes the tensions in the Arab world, it is valuable to pursue meta-events, but not only extraction methods, to observe the relationship between the Arab Spring and climate change. Second, it is important to assess other factors. For example, to analyse the impact of climate change on the revolution in the Arab world and its contribution to migration. The author argues that more research is needed to assess this factor as well.

## **Abstrakt**

Majid Asadnabizadeh

### **Meta-wydarzenia: rozważania o wybuchu Arabskiej Wiosny oraz jej wpływie na zmiany klimatu**

Rewolucja w świecie arabskim, fala prób ustanowienia prawdziwej demokracji przez jednostki, która rozpoczęła się w latach 2010-2011 w jednym z najbardziej wrażliwych regionów świata, na Bliskim Wschodzie i w Afryce Północnej (MENA), rzuciła wyzwanie niektórym zakorzenionym autokratycznym strukturom politycznym. Region ociepla się dwa razy szybciej niż średnia światowa, ze względu na skutki zmian klimatycznych. Oczekuje się, że plony spadną, a produkcja żywności zostanie zakłócona w wielu obszarach, zwiększając ceny żywności i niestabilność rynku. Ograniczone wysiłki podejmowane przez rządy w celu rozwiązania tego problemu zwiększyły prawdopodobieństwo niestabilności politycznej w poprzednich latach.

Niniejsze opracowanie jest zatem próbą ustalenia rzeczywistego i logicznego związku między Arabską Wiosną a skutkami zmian klimatycznych. Arabska Wiosna pokazała, że niestabilność polityczna jest częściowo spowodowana podstawowymi potrzebami ludzi na produkty, takie jak żywność i woda. Zmiany klimatyczne mogą zatem być impulsem do tego meta-wydarzenia. W niniejszym opracowaniu poruszono ten problem przy użyciu metody ekstrakcji zdarzeń. Artykuł ten udowadnia, że zmiany klimatyczne i ich wpływ na życie ludzi w regionie pozwalają na uzasadnione twierdzenie, że zjawisko to jest związane z Arabską Wiosną, ponieważ jest spowodowane przede wszystkim stresem związanym z zaspokajaniem potrzeb żywnościowych.

**Słowa kluczowe:** Arabska Wiosna, zmiany klimatyczne, Bliski Wschód, Północna Afryka

## Reference

- Abbott, P., Teti, A. & Sapsford, R., *The Tide That Failed to Rise: Young People's Politics and Social Values in and After the Arab Uprisings*, „Mediterranean Politics” 2018, vol. 1, no. 25.
- Abed, G.J. & Davoodi, H.R., *Challenges of Growth and Globalization in the Middle East and North Africa* [2003], <https://www.imf.org/external/pubs/ft/med/2003/eng/abed.htm>.
- Abrahams, D. & Carr, E., *Understanding the Connections Between Climate Change and Conflict: Contributions from Geography and Political Ecology*, „Current Climate Change Reports” 2017, vol. 4, no. 3.
- Agénor, P.-R., Nabli, M.K., Yousef, T.M., *Public Infrastructure and Private Investment in the Middle East and North Africa*, „World Bank. Policy Research Working Paper” 2005, no. 3661.
- Aisen, A. & Veiga, F., *Does Political Instability Lead to Higher Inflation? A Panel Data Analysis* „SSRN Electronic Journal” 2005.
- Aksoy, M. & Beghin, J., *Global Agricultural Trade and Developing Countries*, World Bank, Washington 2005.
- Albrecht, H. & Schlumberger, O., „Waiting for Godot”: *Regime Change Without Democratization in the Middle East*, „International Political Science Review” 2004, vol. 4, no. 25.
- Al-Shammari, N. & Willoughby, J., *Determinants of Political Instability Across Arab Spring Countries*, „Mediterranean Politics” 2017, vol. 2, no. 24.
- Ananiadou, S., Pyysalo, S., Tsujii, J. & Kell, D., *Event Extraction for Systems Biology by Text Mining the Literature*, „Trends in Biotechnology” 2010, vol. 7, no. 28.
- Arab Spring* [17 I 2020], <https://www.history.com/topics/middle-east/arab-spring>.
- Blakemore, E., *What Was the Arab Spring and What Caused it to Happen?* [29 III 2019], <https://www.nationalgeographic.com/culture/article/arab-spring-cause>.
- Brown, A., *Climate change and Africa*, „Nature Climate Change” 2015, vol. 9, no. 5.
- Brownlee, J., Masoud, T. & Reynolds, A., *The Arab Spring*, New York 2015.
- Buhaug, H. & Gleditsch, K., *Contagion or Confusion? Why Conflicts Cluster in Space*, „International Studies Quarterly” 2008, vol. 2, no. 52.
- Christensen, J., Carter, T., Rummukainen, M. & Amanatidis, G., *Evaluating the Performance and Utility of Regional Climate Models: The PRUDENCE Project*, „Climatic Change” 2007, vol. 1, no. 81.



- Cousins, S., *Climate and Instability Threatens Water and Food Supplies in the Middle East* [23 IV 2014], <https://www.natureasia.com/en/nmiddleeast/article/10.1038/nmiddleeast.2014.99>.
- Dixon, M., *An Arab spring*, „Review Of African Political Economy” 2011, vol. 128, no. 38.
- Djoundourian, S., *Response of the Arab World to Climate Change Challenges and the Paris Agreement*, „International Environmental Agreements: Politics, Law And Economics” 2021, vol. 3, no. 21.
- De Châtel, F., *The Role of Drought and Climate Change in the Syrian Uprising: Untangling the Triggers of the Revolution*, „Middle Eastern Studies” 2014, vol. 4, no. 50.
- Fredriksson, P. & Neumayer, E., *Democracy and Climate Change Policies: Is History Important?*, „Ecological Economics” 2013, no. 95.
- Femia, F. & Werrell, C.E., *Syria: Climate Change, Drought and Social Unrest* [29 II 2012], [https://climateandsecurity.org/wp-content/uploads/2012/04/syria\\_climate-change\\_drought-and-social-unrest.pdf](https://climateandsecurity.org/wp-content/uploads/2012/04/syria_climate-change_drought-and-social-unrest.pdf).
- Ferré, J., *Environmental Activism In The Post-Arab Spring: It Is Not About A Mere Clean Environment* [2020], [https://www.iemed.org/wp-content/uploads/2020/12/Civil-Society-and-Social-Movements-in-the-EuroMediterranean-Region\\_.pdf#page=66](https://www.iemed.org/wp-content/uploads/2020/12/Civil-Society-and-Social-Movements-in-the-EuroMediterranean-Region_.pdf#page=66).
- Friedman, T.L., *The Other Arab Spring* [7 IV 2012], <https://www.nytimes.com/2012/04/08/opinion/sunday/friedman-the-other-arab-spring.html>.
- Glahn, C., *EU Neighbourhood Policy in the Maghreb: Implementing the ENP in Tunisia and Morocco Before and After the Arab Uprisings*, „Journal of Contemporary European Studies” 2019, vol. 1, no. 27.
- Gleditsch, K., *Transnational Dimensions of Civil War*, „Journal Of Peace Research” 2007, vol. 3, no. 44.
- Hassan, M. & Shalaby, M., *Drivers of Tolerance in Post-Arab Spring Egypt: Religious, Economic, or Government Endorsements?*, „Political Research Quarterly” 2018, vol. 2, no. 72.
- Helfont, S. & Helfont, T., *Jordan: Between the Arab Spring and the Gulf Cooperation Council*, „Orbis” 2012, vol. 1, no. 56.
- Hess, S., *From the Arab Spring to the Chinese Winter: The Institutional Sources of Authoritarian Vulnerability and Resilience in Egypt Tunisia and China*, „International Political Science Review” 2013, vol. 3, no. 34.
- Heydemann, S., *Explaining the Arab Uprisings: Transformations in Comparative Perspective*, „Mediterranean Politics” 2015, vol. 1, no. 21.
- Inayatullah, S., *The Arab Spring: Whats Next?*, „World Affairs: The Journal of International Issues” 2011, vol. 3, no. 15.
- Joffé, G., *The Arab Spring in North Africa: Origins and Prospects*, London 2013.
- Johnstone, S. & Mazo, J., *Global Warming and the Arab Spring*, „Survival” 2011, vol. 2, no. 53.

- Jones, P., *The Arab Spring. International Journal*, „Canada’s Journal of Global Policy Analysis” 2012, vol. 2, no. 67.
- Kusangaya, S.L., Warburton, M., van Garderen, E.A. & Jewitt, G.P.W., *Impacts of Climate Change on Water Resources in Southern Africa: A Review*, „Physics And Chemistry of The Earth” 2014, A/B/C.
- Lange, M., *Impacts of Climate Change on the Eastern Mediterranean and the Middle East and North Africa Region and the Water–Energy Nexus*, „Atmosphere” 2019, vol. 8, no. 10.
- Lefèvre, R., *Tunisia: A Fragile Political Transition*, „The Journal of North African Studies” 2015, vol. 2, no. 20.
- Levin, I., Huneke, M. & Jasper, J., *Information Processing at Successive Stages of Decision Making: Need for Cognition and Inclusion–Exclusion Effects*, „Organizational Behavior And Human Decision Processes” 2000, vol. 2, no. 82.
- Lionello, P., Abrantes, F., Gacic, M., Planton, S., Trigo, R. & Ulbrich, U., *The Climate of the Mediterranean Region: Research Progress and Climate Change Impacts*, „Regional Environmental Change” 2014, vol. 5, no. 14.
- Lu, L. & Thies, C., *War, Rivalry, and State Building in the Middle East*, „Political Research Quarterly” 2012, vol. 2, no. 66.
- Lynch, M., *The Arab Uprisings as International Relations* [17 IX 2015], <https://www.washingtonpost.com/news/monkey-cage/wp/2015/09/17/the-arab-uprisings-as-international-relations/>.
- McNutt, M., *Climate Change Impacts*, „Science” 2013, vol. 6145, no. 341.
- Misra, A., *Climate Change and Challenges of Water and Food Security*, „International Journal Of Sustainable Built Environment” 2014, vol. 1, no. 3.
- Namdar, R., Karami, E. & Keshavarz, M., *Climate Change and Vulnerability: The Case of MENA Countries*, „ISPRS International Journal of Geo-Information” 2021, vol. 11, no. 10.
- Perez, I., *Climate Change and Rising Food Prices Heightened Arab Spring* [4 III 2013], <https://www.scientificamerican.com/article/climate-change-and-rising-food-prices-heightened-arab-spring/>.
- Plakoudas, S., *Causes of the Arab Spring: A Critical Analysis*, Center For International Strategic Analyses, „Research Paper” 2017, no. 7.
- Poitras, E. & Lajoie, S., *A Domain-Specific Account of Self-Regulated Learning: The Cognitive and Metacognitive Activities Involved in Learning Through Historical Inquiry*, „Metacognition and Learning” 2013, vol. 3, no. 8.
- Salimi, M. & Al-Ghamdi, S., *Climate Change Impacts on Critical Urban Infrastructure and Urban Resiliency Strategies for the Middle East*, „Sustainable Cities And Society” 2020, no. 54.
- Schilling, J., Hertig, E., Trambly, Y. & Scheffran, J., *Climate Change Vulnerability Water Resources and Social Implications in North Africa*, „Regional Environmental Change” 2020, vol. 1, no. 20.

- Scheffran, J. & Battaglini, A., *Climate and Conflicts: The Security Risks of Global Warming*, „Regional Environmental Change” 2011, vol. 1, no. 11.
- Shatanawi, M., *The Arab Spring and Water Security*, „Proceedings of The International Association of Hydrological Sciences” 2015, no. 366.
- Shepherd, T., Boyd, E., Calel, R., Chapman, S., Dessai, S. & Dima-West, I., *Storylines: An Alternative Approach to Representing Uncertainty in Physical Aspects of Climate Change*, „Climatic Change” 2018, vol. 3-4, no. 151.
- Silverman, D., *The Arab Military in the Arab Spring: Agent of Continuity of Change? A Comparative Analysis of Tunisia Egypt Libya and Syria*, „SSRN Electronic Journal” 2012.
- Sternberg, T., *Chinese Drought Bread and the Arab Spring*, „Applied Geography” 2012, no. 34.
- Steyaert, J., *Web-Based Higher Education: The Inclusion/Exclusion Paradox*, „Journal Of Technology In Human Services” 2005, no. 23.
- Su, B., *Feature Extraction Based on Collaborative Representation and Fuzzy Progressive Maximal Marginal Embedding*, „Journal of Computer Applications” 2013, vol. 6, no. 33.
- Suíça, G., *Climate Change 2001: Impacts Adaptation and Vulnerability*, „Choice Reviews Online” 2002, vol. 6, no. 39.
- Vasileska, A. & Rechkoska, G., *Global and Regional Food Consumption Patterns and Trends*, „Procedia: Social and Behavioural Sciences” 2012, no. 44.
- Waha, K., Krummenauer, L., Adams, S., Aich, V., Baarsch, F. & Coumou, D., *Climate Change Impacts in the Middle East and Northern Africa (MENA) Region and Their Implications for Vulnerable Population Groups*, „Regional Environmental Change” 2017, vol. 6, no. 17.
- Yousef, T. & Dhillon, N., *Generation in Waiting: The Unfulfilled Promise of Young People in the Middle East*, Washington 2009.
- Zadahmad, M., Syriani, E., Alam, O., Guerra, E. & De Lara, J., *DSMCompare: Domain-Specific Model Differencing for Graphical Domain-Specific Languages*, „Software and Systems Modeling” 2022, vol. 5, no. 21.
- Zittis, G. & Lelieveld, J., *Eastern Mediterranean and Middle East Face Rapid Climate Change*, „Eos” 2022, no. 103.

**Majid Asadnabizadeh** – dr politologii, adiunkt w Katedrze Stosunków Międzynarodowych w Instytucie Nauk o Polityce i Administracji Uniwersytetu Marii Curie-Skłodowskiej w Lublinie. ORCID: 0000-0001-7331-3268