THESIS

CLIMATE CHANGE CONTRIBUTIONS TO CONFLICT: AN ANALYSIS OF SYRIA, YEMEN AND EGYPT

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ABSTRACT

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Ascriptions of false, causal connections between climate change and conflict sets a dangerous precedent for future refugee migration. Classification of refugees fleeing murderous regimes and/or circumstances, as climate migrants attempting to escape areas impacted climatically, reduces the subjective severity of the actual situations they were fleeing. Potential harmful ramifications to their asylum claims could result, consequential of a reduction in perceived threat to those migrants' lives by Consular officials. It also delegitimizes future climate refugees' asylum claims, those truly fleeing areas devastated by the effects of climate change/variability. Responsible consideration of the latest 2018 IPCC Special Report indicates, absent aggressive greenhouse gas (GHG) abatement measures, these are migrant circumstances that are increasingly likely to manifest. Such false assertions also detract from placing responsibility for the deaths of hundreds of thousands and the displacement of millions where it should be placed: with the Syrian, Yemeni and Egyptian governments. Affirming climate change as the main causal factor that initiated the Syrian conflict allows the regime to shift focus from its own administrative failures that were in fact the largest contribution to a conflict that has witnessed the deaths of hundreds of thousands. Similarly, false attribution of climate effects to Yemen's calamitous situation allows the worst humanitarian crisis in the world, involving famine conditions for millions of Yemenis, to be mistakenly viewed within an environmental context. Deaths and atrocities purportedly resulting from climate phenomena shift responsibility from where it should lay, with the Yemeni conflict's belligerents and their egregious actions.

Also, the identification of Egypt's socio and political maladies as primarily consequent of climatic events disallows for the reckoning of the true causes that fomented rebellion during Egypt's Arab Spring "awakening." Finally, such false proclamations inhibit accurate advances to empirical knowledge that could be used in the future towards conflict mitigation and prevention. Implications for future climate refugees and those fleeing violent conflict demand accurate identification of conflict causation. To demand anything less as a member of a global citizenry is a dereliction of one's responsibility to humanity.

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Introduction

Climate change is one of the most politically charged issues in the world today. In the United States, a country already marked by extreme political partisanship, the issue contributes to a continuous broadening of partisan divisiveness, further eroding into a chasm whereby political rapprochement between liberals and conservatives is seemingly only a memory of days long past. The 2018 Intergovernmental Panel on Climate Change (IPCC) Report has only deepened this chasm. Those who believe in the science are increasingly alarmed by the 2018 report's determination of a world witnessing future catastrophe as soon as 2040, a possible consequence if greenhouse gases (GHGs) are allowed to continue to rise unabated. Those who question the science; whether for economic, religious, or partisan reasons; remain steadfastly opposed.

The 2018 IPCC report, the Panel's first since the 2015 Paris Accords, proposed a dire future for many parts of the world; a future coming much faster than previously suggested and consequent of a lower global temperature rise than previously reported.[1] The authors of the report, 91 scientists derived from 40 countries, having analyzed over 6,000 scientific studies, ascertained that the previous global goal of limiting a 3.6 degree Fahrenheit (F) temperature rise above preindustrial levels, agreed to by all signatories in Paris in 2015, as no longer tenable.[2] Small island nations' political leaders, fearful of sea-level rise, requested studies involving the consequences of only a 2.7-degree (F) rise. The scientists responded, with stark conclusions for both humanity and the world.

[1] IPCC, 2018: Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty, 7.
[2] IPCC, 2018, 7.

Absent aggressive abatement action of global GHG emissions, many climate effects previously expected to arrive decades in the future could instead become manifest by 2040, and as a result of the lower 2.7-degree (F) threshold.[3] To actually prevent a 2.7-degree (F) rise would require GHG pollution within the atmosphere being reduced to 45 percent of 2010 levels by 2030; with a 100 percent reduction by the year 2050.[4] Also by 2050, global usage of coal must nearly be eradicated; from today's 40 percent of global power production necessitating a reduction to between 1 and 7 percent.[5] Renewable energy sources, contributing nearly 20 percent of today's global output, has to more than triple to 67 percent.[6] According to the IPCC authors, if the report goes unheeded, the world we will witness will be markedly different in only a little more than two decades.

Reaching and/or breaching the 2.7-degree (F) threshold has world-wide implications. "The United States, along with Bangladesh, China, Egypt, India, Indonesia, Japan, the Philippines and Vietnam are home to 50 million people who will be exposed to the effects of increased flooding."[7] If the previous threshold of 3.6-degrees (F) is breached, a "rapid evacuation" by people from the tropics is expected.[8] One of the report's authors, Aromar Revi, stated, "In some parts of the world, national borders will become irrelevant. You can set up a wall to try to contain 10,000 and 20,000, even a million people, but not 10 million."[9] This scenario, possible within only a generation, has global security implications.

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[3] Ibid, 8.
[4] Ibid, 8.
[5] Ibid, 8.
[6] Ibid, 9.
[7] Davenport, C., (2018). "Major Climate Report Describes a Strong Risk of Crisis as Early as 2040." *NYTimes*, Accessed Oct. 27, 2018.
[8] Davenport, C., (2018). "Major Climate Report Describes a Strong Risk of Crisis as Early as 2040."
[9] Ibid.

In 2015, the Department of Defense (DoD) released its own report regarding climate change. "Global climate change will aggravate problems such as poverty, social tensions, environmental degradation, ineffectual leadership and weak political institutions that threaten stability in a number of countries."[10] The report determines climate change as a security risk because of societal degradations involving "living conditions, human security and the ability of governments to meet the basic needs of their populations."[11] Already fragile communities and states lack the requisite resources that will be required to confront such climate disruptions.[12] The DoD "already is observing the impacts of climate change in shocks and stressors to vulnerable nations and communities, including in the United States, the Arctic, the Middle East, Africa, Asia, and South America;" and it is within "this context that the department must consider the effects of climate change," specifically, "sea level rise, shifting climate zones and more frequent and intense severe weather events" and how they may impact national security.[13]

This issue is not only salient for the national security infrastructure of the U.S., it's globally prescient as well. Of particular relevance is determining climate change's role in relation to armed conflict. As climate science has evolved, so too has theoretical discourse surrounding the climate change/conflict nexus. Early intimations assigning climate change as causal to conflict were derived "from a widely held belief that resource scarcities and loss of livelihoods due to climate extremes (had) the potential to instigate armed conflict."[14] A myriad of words and concepts relational to the aforementioned nexus require a standardization of its

[10] Department of Defense, (2015). "DoD Releases Report on Security Implications of Climate Change." *DoD News*, Accessed Sep. 28, 2018.
[11] Department of Defense, (2015). "DoD Releases Report on Security Implications of Climate Change."
[12] Ibid.
[13] Ibid.
[14] Wischnath, G., & Buhaug, H., (2014a). "On Climate Variability and Civil War in Asia." *Climatic Change*, *122*(4), 710.

most used language therein. For the purpose of this thesis, "climate change", "climate variability", and "conflict" will be further defined as such: "climate change" identifies as "changes in mean climate at a location over long periods;" "climate variability" "describes short-term changes in climate (such as standard deviations, the occurrence of extremes, etc.);" and "conflict" as "describe(ing) when two (or more) social groups clash and at least one of the groups use physical violence to obtain or express its interests."[15] The term "conflict" will be used interchangeably with "armed conflict" and "violent conflict" throughout.

Researching the nexus between climate change/variability and conflict required identifying an area in the world where both phenomena happen to be manifest. The Middle East, North Africa (MENA) region was chosen for the rare opportunities the area presented. Syria, Yemen and Egypt all had identifiable drought trends that precipitated each respective countries' initiation of hostilities. Each country was also participatory in the historic "awakening" that encapsulated the early stages of the Arab Spring. Concomitantly, each country's unfortunate, eventual transition to violence can also be traced back to the Arab Spring's once promising beginnings. Early conjecture by some international actors, such as the Nobel Committee, the United Nations Security Council, then Secretary of State John Kerry and former President Barack Obama, identified the preceding droughts a result of climate variability induced by climate change, assigning causal linkages between climatic effects and subsequent conflict.[16] This would eventually cause controversy and debate, some scholars agreeing with the causal inferences, others finding the correlations spurious.

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[15] Seter, H., (2016). "Connecting Climate Variability and Conflict: Implications for Empirical Testing." *Political Geography*, 53, 2.
[16] Theisen, O. M., Gleditsch, N. P., & Buhaug, H., (2013). "Is Climate Change a Driver of Armed Conflict?" *Climatic Change*, *117*(3), 614.

Justification for this research is grounded in the alleviation of suffering. Understanding the historical complexities that led to such devastating conflict can be used to mitigate similar circumstances in the future. Implications concerning future refugee migration also justify the research. To inaccurately ascribe climate change as the main causal factor that conditioned conflict could have extreme ramifications for those seeking asylum in the future. For example, wrongly classifying a Syrian refugee fleeing a murderous Assad regime as a climate refugee, as some scholars have suggested, could lead to their asylum request being negatively impacted; a consequence of consular officials reducing the subjective severity of the situation they were fleeing. Conversely, if a conflict defined by climate change, as Syria has been defined by some, is later evidenced to have not been impacted climatically, as happened with the 2003-2005 war in Darfur, it delegitimizes the asylum claims of future refugees fleeing areas truly devastated by the effects of climate change.

Thus**,** the importance of accurate identification of conflict causation motivates my research. Syria, Yemen and Egypt's violent implementations having begun at roughly the exact same moment in time, as well as each countries' relationships with drought conditions, allowed for a unique opportunity of comparative research within the climate change/conflict paradigm. Contrary to earlier theories ascribing conflict causality as a manifestation of climate variability induced by climate change, the modern majority, scholarly consensus is seemingly antithetical to those prior protestations. My research question is thus derived from these countervailing opinions and asks, "What caused Syria and Yemen's droughts (water), as well as Egypt's drought (food), and what were those droughts' contributions to each nations' onset of hostilities. From this question I arrived at two hypotheses: 1) If each countries' droughts were not a result of climate change/variability, then they were a result of either a long-term drying trend or a

manifestation derived from human auspices; and 2) If the droughts that precipitated those countries' conflicts were exacerbates rather than causal, as more contemporary research suggests, then it must be assumed that underlying socioeconomic, ethnic, religious, and/or tribal tensions were the actual precipitating causal factors that ignited each countries' respective rebellions. Only through accurate identification of all discernible causal factors that led to each nations' violent conflict can additions to empirical knowledge be advanced. The implications for future climate refugees and conflict mitigation/prevention demand such honest portrayals.

This paper will proceed as follows. First, I will review the pertinent literature regarding the nexus between climate change/variability and conflict, focusing on the historical foundations and evolutionary transition towards the literature seen today. Second, I will discuss my theoretical framework under a poststructuralist perspective. Third, a review of the data, source collection, and methodologies used within my research design. Fourth, examinations regarding case selection, descriptions and each countries' subsequent analyses. Finally, I end with a discussion of the precipitating factors that led to each countries' joining of the Arab Spring uprisings, with a subsequent conclusion identifying implications for future refugee migration.

Literature Review

Empirical Foundations

Much of the early literature surrounding the climate change/conflict nexus can be attributed to Thomas Homer-Dixon. Seemingly, nearly every subsequent literary work regarding the subject contains citations or attributions to his authorship. His 1991 article, "On the Threshold: Environmental Changes as Causes of Acute Conflict," offered a relatively new perspective in which climate change, and any effects resulting thereof, was introduced as a possible causal mechanism leading to conflict. The article was the first component of a three-

year study, similarly titled, "The Project on Environmental Change and Acute Conflict," involving 30 researchers encompassing 10 countries.[17] It was a novel work, the first of its kind offering a research analytical framework as a means of ascertaining "how" environmental change might lead to conflict.[18] Homer-Dixon's article essentially identified human activity as contributing to environmental stressors; which, in turn, lead to social disruptions; thereby, ultimately leading to conflict.[19] The author listed four principle social effects resulting from environmental degradation that could, "either singularly or in combination," markedly "increase the probability of acute conflict in developing countries: decreased agricultural production, economic decline, population displacement, and disruption of legitimized and authoritative institutions and social relations."[20] These four effects, Homer-Dixon hypothesized, could lead to three possible types of conflict: simple scarcity conflicts, group identity conflicts, and relative-deprivation conflicts.[21] The last type, relative-deprivation conflict, and its determination suggesting civil strife as likely when:

> 1) there are clearly defined and organized groups in society; 2) some of these groups regard their level of economic achievement, and in turn the broader political and economic system, as wholly unfair; and 3) these same groups believe that all peaceful opportunities are blocked, yet regard the balance of power within the society as unstable: that is, they believe there are structural opportunities for overthrowing authority in the society;

would prove especially prescient later in this study.[22]

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[17] Homer-Dixon, T., (1994). "Environmental Scarcities and Violent Conflict: Evidence from Cases." *International Security, 19*(1), 5.
[18] Homer-Dixon, T., (1991). "On the Threshold: Environmental Changes as Causes of Acute Conflict." *International Security, 16*(2), 87.
[19] Homer-Dixon, T., (1991). "On the Threshold," 87.
[20] Ibid., 91.
[21] Ibid., 110.
[22] Ibid., 110.

The second component of Homer-Dixon's three-year study, the 1994 article titled, "Environmental Scarcities and Violent Conflict: Evidence from Cases," presented new general findings and revisions of his original hypotheses derived from his 1991 study.[23] The author redefined the independent variable by narrowing "the range of environmental problems" theorized to cause conflict while simultaneously expanding the independent variable's scope "to include scarcity caused by population growth and resource maldistribution" to coincide with "degradation and depletion" of the first study.[24] Empirical additions to the former study were garnered, most involving changes regarding the previously hypothesized three types of conflict and their social manifestations as a result of resource scarcity versus that of environmental degradation.[25] Of most significance were the study's direct conclusions, which stated, "Our research shows that environmental scarcity causes violent conflict," also determining "the rate and extent of such conflicts will increase as scarcities worsen.[26]

Homer-Dixon's Project on Environmental Change and Acute Conflict in the early to mid 90's provided the empirical foundation for all future research regarding the climate change/ conflict nexus. Several other "major research endeavors" in the 90's were bred from this foundation, specifically, "by groups at the Swiss Peace Foundation, the International Peace Research Institute in Oslo, Yale University, Colombia University, and two subsequent University of Toronto projects led again by Homer-Dixon" himself.[27] Homer-Dixon's initial study, and the subsequent literature it inspired, both created and added value to the scholarly, theoretical discourse surrounding the climate change/conflict nexus.

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[23] Homer-Dixon, T., (1994). "Environmental Scarcities and Violent Conflict," 5.
[24] Homer-Dixon, T., (1994). "Environmental Scarcities and Violent Conflict," 18.
[25] Ibid., 35.
[26] Ibid., 36-39.
[27] "New Publications." (1999). *Environmental Change & Security Project Report*, (5) 105.

Another contribution to early environmental security literature was Deudney's 1991 article, "Environment and Security: Muddled Thinking," in which the author portrayed early attempts by Congressional leaders, most notably Tennessee Senator Al Gore, as trying to securitize environmental degradation, thereby determining it as a threat to national security on par with threats of violence from nation-states like the Soviet Union.[28] Deudney argued that to do so could only be useful if security from both phenomena were perceived as comparable.[29] However, the author described four major dissimilarities that disallowed for such equitable threat considerations, most significantly, the difference in perceived proportionality of each's threat level.[30] At that time, environmental concerns just could not match threats of violence from other nations. Ultimately, Deudney posited that although future resource scarcity and ecological disturbances may contribute to conflict in the future, institutional vitalities such as economic interdependence, as well as human ingenuity in solving global problems, would overcome any future environmental and conflictual difficulties.[31]

Another important literary contribution to the early debate surrounding climate change and conflict was Levy's 1995 article, "Is the Environment a National Security Issue?" Levy examined whether environmental degradation could be seen as a legitimate threat to U.S. national security. He focused on three connections between the environment and security, termed the "existential, physical, and the political," in order to review possible causal relationships between ecological stressors and security deterioration.[32] Levy determined that while environmental degradation could be perceived as causal to conflict in some instances, it

[28] Deudney, D., (1991). "Environment and Security: Muddled Thinking." *The Bulletin of Atomic Scientists, 47*(3), 23.
[29] Deudney, D., (1991). "Environment and Security," 23.
[30] Ibid., 23.
[31] Ibid., 28.
[32] Levy, M., (1995). "Is the Environment a National Security Issue?" *International Security, 20*(2), 36.

was more of an indirect, ancillary political threat to the U.S.[33] Any conflict derived from such degradation would likely manifest within regions far removed from U.S. interests, suggested the author.[34] Levy's final assertion regarding causal suggestions between the environment and conflict declared more research needed for the latter, not the former. "Environmental problems that have security implications" manifest through indirect pathways; "to respond effectively to these problems, one needs to deepen the understanding of regional and civil conflict; the environment occupies only one of many causal roles."[35]

The last major literary contribution from the 90's was derived from the aforementioned research endeavor conducted by the International Peace Research Institute in Oslo. Authored by Graeger, the peer-reviewed publication sought to address "conceptual and methodological shortcomings" concerning purported ascriptions of environmental degradation as causal to violent conflict.[36] Describing the positive benefits created by the discourse surrounding the climate/conflict nexus, such as increased political awareness, she warned of assigning causal linkages that could evolve into an "undesirable 'securitization' of the environment."[37] Overcoming problematic methodological sequences within the "environmental conflict perspective," Graeger contended, required a "multilevel approach" involving a multiverse of global, regional, national, and subnational actors making decisions "according to the subsidiarity principle," thereby providing "a more dynamic framework for action" than the antiquated "state-centered approach."[38]

[33] Levy, M., (1995). "Is the Environment a National Security Issue," 37.
[34] Ibid., 37.
[35] Ibid., 61.
[36] Graeger, N., (1996). "Environmental Security?" *Journal of Peace Research, 33*(1), 109.
[37] Graeger, N., (1996). "Environmental Security," 109.
[38] Ibid., 109.

2000-2010 Literature

Most notable literary contributions to the empirical knowledge within the climate/conflict nexus advanced during the decade between 2000 to 2010 begins with Dokken. Her article, titled, "Environment, Security and Regionalism in the Asia-Pacific," sought to answer whether environmental security could be construed as a useful concept within the Association of Southeast Asian Nations (ASEAN).[39] The author depicted an association of countries historically adept at collective conflict resolution.[40] While the threats posed by climate change would inevitably bring new challenges, the interdependent cooperative legacies within the country consortium, the author declared, would surmount any future difficulties resulting from climatic disturbances possibly induced by climate change.[41] Ubiquitous to all associated countries was the historical precedence generally given to security issues. Therefore, the "usefulness" of linking environmental concerns to those of state security was proven as instrumental in moving such concerns to the top of each respective countries' agendas.[42] Ultimately, this would lead to successful cooperation and resolutions for each participatory nation involved.[43]

The next contributory work also stems from the early decade, Le Billon's 2001 article, "The Political Ecology of War: Natural Resources and Armed Conflicts." Le Billon's examination of relationships involving natural resources and armed conflict are reminiscent of dependency intimations most associated with postcolonialism.[44] The author posited correlations

[39] Dokken, K., (2001). "Environment, Security and Regionalism in the Asia-Pacific: Is Environmental Security a Useful Concept?" *The Pacific Review, 14*(4), 509.
[40] Dokken, K., (2001). "Environment, Security and Regionalism in the Asia-Pacific," 511.
[41] Ibid., 523.
[42] Ibid., 527.
[43] Ibid., 528.
[44] Le Billon, P., (2001). "The Political Ecology of War: National Resources and Armed Conflict." *Political Geography, 20*(5), 562.

between both resource dependent countries and/or those relying primarily on exports as locations ripe for armed conflict.[45] Political economies built around resource dependence were determined to have citizenries more vulnerable to violence, their subjugation a result of "brutal patterns of resource extraction and predation;" a historic continuation of violent, colonial pasts.[46] Le Billon concluded that linkages between natural resource extraction and armed conflict suggested criminality within international commodities markets; a consequence of those resources so violently acquired being included within the global financial system; "an exclusionary form of globalization."[47]

Barnett and Adger's 2007 article, "Climate Change, Human Security and Violent Conflict," argued climate change as both a contemporary and future threat to human security.[48] Specifically, because of reductions to persons' access to needed natural resources used for sustainment of livelihoods, and because of decreased state capacity in offering the opportunities and services needed for that sustainment.[49] While the authors specified potential "negative effects" to people's well-being as the majority concern, they posited that because "livelihood contraction" is typically found in areas experiencing violent conflict, threats to livelihoods as a result of climate change could therefore potentially instigate such violence.[50] Further research was needed regarding climate induced insecurity to enhance adaptation strategies to be used in the mitigation and avoidance of future armed conflict.[51]

[45] Le Billon, P., (2001). "The Political Ecology of War," 561.
[46] Ibid., 578.
[47] Ibid., 580-581.
[48] Barnett, J. & Adger, W.N., (2007). "Climate Change, Human Security and Violent Conflict." *Political Geography, 26*, 650.
[49] Barnett, J. & Adger, W.N., (2007). "Climate Change, Human Security and Violent Conflict," 651.
[50] Ibid., 651.
[51] Ibid., 652.

Similar to Graeger, in Trombetta's 2008 article, "Environmental Security and Climate Change: Analyzing the Discourse," the author argued for the securitization of climatic problems because of the expediency renditions of "war footings" endeavor.[52] A re-articulation of climate change as a collective societal threat was needed, she argued, to foster the type of aggressive responses required in meeting such challenges.[53] Trombetta identified recognition and constitution of a problem into a threat as legitimizing the subsequent actions and institutional, structural changes needed in facilitation of countering those threats' most ill effects.[54] A recontextualization of climate change and its "largely uncertain, diffuse, difficult to quantify, and yet potentially catastrophic" threats the issue poses, into a security problem similar to a threat posed by an oppositional nation-state, was the only logical, rational, and pragmatic decision for those political actors responsible in provisioning the collective, societal safety of their constituencies.[55]

Detraz and Betsill's 2009 article, "Climate Change and Environmental Security: For Whom the Discourse Shifts," explored the implications of the 2007 United Nations Security Council debate regarding climate change and its potential global security ramifications.[56] The meeting, the council's first on climate change, was reflective of one of the two types of discourse, environmental security, as opposed to environmental conflict, that the authors suggested defined the discursive rhetoric surrounding the climate/conflict nexus.[57] A shift towards environmental conflict discourse, identified as a militarized conceptualization utilizing a

[52] Trombetta, M., (2008). "Environmental Security and Climate Change: Analyzing the Discourse." *Cambridge Review of International Affairs, 21*(4), 585.
[53] Trombetta, M., (2008). "Environmental Security and Climate Change," 589.
[54] Ibid., 599.
[55] Ibid., 600.
[56] Detraz, N. & Betsill, M., (2009). "Climate Change and Environmental Security: For Whom the Discourse Shifts." *International Studies Perspectives 10*, 303.
[57] Detraz, N. & Betsill, M., (2009). "Climate Change and Environmental Security," 304.

top down, hierarchical approach emphasizing simplicity and parsimony as desired attributes in countering future challenges presented by climate change; narrowing and limited in scope as opined by the authors, had not yet taken place.[58] This was viewed as fortunate by Detraz and Betsill. The complexity inherent to the myriad challenges presented by climate change required a broadening of possible solutions, not restrictive constraints. Inadequate policy solutions would result from a discursive shift towards conflict. The discourse having remained within the environmental security perspective was seen as crucial by the authors; a movement towards conflictual discourse would severely limit and inhibit the human ingenuity requisite in countering climate change's most difficult, future challenges.[59]

Contemporary Literature

The majority of research compiled to date considering whether climate change can be construed as causal to conflict has been achieved within the last decade. The contemporary, majority consensus alludes to a resoundingly familiar theme best defined by Behuag, et al., specifically, "that research to date has failed to converge on a specific and direct association between climate and violent conflict." This by no means intimated that climate cannot influence armed conflict, only that thus far empirical and observable data had failed to specifically identify causal linkages between climate change/variability and conflicts. Far more likely, is the supposition that climate variability effects induced by climate change (longer drought durations, rising sea-levels, storms of strengthening intensity, and the increased coastal flooding resulting thereof) exacerbate already simmering socioeconomic, political, religious, and/or ethnic tensions, either communally and/or between nation-states.[60]

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[58] Ibid., 314.
[59] Ibid., 316.
[60] Buhaug, H., Nordkvelle, J., Bernauer, T., Böhmelt, T., Brzoska, M., Busby, J. W., ... von Uexkull, N., (2014). "One Effect to Rule Them All? A Comment on Climate and Conflict." *Climatic Change*, *127*(3-4), 396.

For instance, in Theisen, Gleditsch and Buhaug's 2013 article, "Is Climate Change a Driver of Armed Conflict," the authors studied short-term effects associated with climate variability. While acknowledging that a widespread view exists suggesting climate change as possibly "the greatest challenge to global liberal peace," the authors posited "little systematic evidence to date" verifying short-term climate variations as having "any observable effect on the general pattern of conflict in modern times."[61] More probable, rather, were short-term effects, such as drought, adding to already burdened, vulnerable societies and governments' socioeconomic woes. The true threat of climate change, the authors contended, is its prohibitive nature disallowing successful alleviation of poverty and human insecurity in areas already rife with both.[62]

Another 2013 study by Klomp & Bulte considering weather variability as a potential catalyst fomenting conflict in Africa found spurious correlations. Emphasizing both local and global rainfall and mean temperatures, the authors' study hypothesized causal linkages between rainfall amounts and subsequent agricultural conditions resulting thereof, and conflict. The authors' initial theory expected areas experiencing drought conditions as more probable locations conducive to armed conflict. Rather, their results identified areas containing large amounts of rainfall as more prone to violence. Increased rainfall led to higher agricultural yields, which, in turn, led to larger surpluses that could be purposed by possible combatants and sold within their respective, local markets. However, not everyone in these communities reaped the benefits of these plentiful harvests. Aggregate rises in rainfall amounts led to an amassed rise in economic disparity within these communities. Upticks in violence were a consequence of economic marginalization, not the exogenous effects of climatic variability. Klomp and Bulte found no

[61] Theisen, O. M., Gleditsch, N. P., & Buhaug, H., (2013). "Is Climate Change a Driver of Armed Conflict," 614.
[62] Theisen, O. M., Gleditsch, N. P., & Buhaug, H., (2013). "Is Climate Change a Driver of Armed Conflict," 622.

association between temperature changes, rainfall, and conflict.[63] Their conclusions intimated endogenous factors, such as socioeconomic constructs, as more comprehensive components within the climate change/variability and conflict paradigm.

Salehyan argued similarly relative to observable causal linkages between climate change/variability and conflict. However, failures in ascribed causality, he believed, were directly attributable to research designs and how they were implemented. Specifically, he listed geographic, temporal, and social scales, and the way they've been utilized in theoretical and empirical models in aggregate, as disruptive toward any type of analytical comparison. Salehyan described researchers as being "agnostic" concerning the appropriate size and scope of the scales, specifically, their prior measurements and units of analyses having been too broad.[64] Specificity and more unique research designs were necessitated in the future to accurately ascertain relationships between climate and conflict. Adding "considerable nuance and richness to the academic debate," were sorely needed in the logical progression of climate change/conflict research.[65]

Yet another article authored by Salehyan, this time accompanied by Hendrix, researched causal correlations between water scarcity and conflict throughout Africa. Similar to Klomp & Bulte's 2013 study, the authors operated under a hypothetical which expected conflict to increase during drought conditions because of "grievances, resource competition, and lower opportunity costs for fighting."[66] Instead, positive correlations between water abundance and conflict consistently manifested throughout their study. "Periods of acute water scarcity" would inhibit

[63] Klomp, J., & Bulte, E., (2013). "Climate Change, Weather Shocks, and Violent Conflict: A Critical Look at the Evidence." *Agricultural Economics*, *44*(1), 21-22.
[64] Salehyan, I., (2014). "Climate Change and Conflict: Making Sense of Disparate Findings." *Political Geography*, *43*, 2.
[65] Salehyan, I., (2014). "Climate Change and Conflict," 5.
[66] Salehyan, I., & Hendrix, C., (2014). "Climate Shocks and Political Violence." *Global Environmental Change*, *28*, 241.

rather than foster conditions for conflict, forcing potential fighters to "focus on (their) immediate survival rather than engage in costly, destructive fighting."[67] Rather, "periods of relative abundance free up resources and labor, (thereby) create(ing) more advantageous tactical environments" better suited for conflict.[68] Although Salehyan and Hendrix suggested water scarcity as a possible catalyst "provoke(ing) other forms of conflict," such as, "unorganized riots, interpersonal disputes, or communal clashes," a causal relationship between depleted water sources and violent, armed conflict could not be identified.[69]

Selby provided perhaps the most scathing analysis regarding the climate/conflict nexus. The author derided what he termed Positivist Climate Conflict Research (PCCR) as "highly speculative, not peer-reviewed, and also unremitting in its neo-Malthusianism."[70] Selby's main contention was with what he described as the "cutting-edge scientific studies" being both "analytically flawed and politically problematic," unable to "to provide a sure guide to understanding the conflict and security implications of anthropogenic climate change."[71] He proposed that scientists and theorists positing PCCR offered spurious correlations, their subsequent predictive intimations having no foundational merit whatsoever. Ultimately, Selby offered a critical approach methodology grounded in totality, historicity, and reflexivity as a means of countering positivism's "parsimony and predictability," thereby gaining the "complexity and contingency" needed to accurately assess the climate/conflict nexus.[72]

The prevailing literature to date regarding climate change and conflict has undergone an evolutionary transformation. Earlier research contrasted sharply with more recent research

[67] Salehyan, I., & Hendrix, C., (2014). "Climate Shocks and Political Violence," 248.
[68] Ibid., 248.
[69] Ibid., 248.
[70] Selby, J., (2014). "Positivist Climate Conflict Research: A Critique." *Geopolitics*, *19*(4), 830.
[71] Selby, J., (2014). "Positivist Climate Conflict Research," 830.
[72] Ibid.," 850-851.

utilizing more contemporary research designs. Most recent literature overwhelmingly suggests no direct causal linkages between climate change/variability and armed conflict. Rather, climatic effects derived from climate change are seen as exogenous factors exacerbating already ongoing endogenous societal difficulties. Assigning proper attribution of conflict causality is of particular relevance concerning the aforementioned three Arab Spring countries. All countries suffered from drought prior to the initiation of hostilities, contributing to early intimations determining climate change/variability as possibly the main impetus which fomented the rebellions in each respective country. Missing from the current literature is a country comparison researching Syria, Yemen and Egypt's precipitating factors that preempted civil strife. The evolutionary transition from early literature ascribing climate change/variability as possibly causal to armed conflict, towards more recent literature depicting climate change/variability as more an exacerbating factor rather than causal influence, necessitates a restatement of my two hypotheses: 1) If each countries' droughts were not a result of climate change/variability, then they were a result of either a long-term drying trend or a manifestation derived from human auspices; and 2) If the droughts that precipitated those countries' conflicts were exacerbates rather than causal, as more contemporary research suggests, then it must be assumed that underlying socioeconomic, ethnic, religious, and/or tribal tensions were the actual precipitating causal factors that ignited each countries' respective rebellions. My research, therefore, adds to the empirical knowledge surrounding the climate change/variability and conflict nexus through strict adherence to a multitude of research methods; most notably the comparative case study method. Accurate identification of the preceding causal factors that led to the Syrian, Yemeni and Egyptian conflicts affords valuable insight into accurate depictions of

conflict causation with implications for future conflict mitigation, prevention, and refugee migration.

Theoretical Framework

While the majority of International Relations (IR) theory is derived from traditional ontologies such as rationalism and Marxism, with the majority of its epistemological methodologies rooted in realist, liberalist, or constructivist approaches; this paper will instead focus on a more contemporary, poststructuralist approach. Specifically, through poststructuralism's "reformulation of the relationship between language and logic" that provides an alternative means of analysis derived from linguistics.[73] Most significantly, through the impact of "speech acts" as "actions" in and of themselves, as well as the constitutive role of language as a facilitator of interaction between states and actors.[74]

Reformulating the language/logic nexus provides an alternative mode of analysis regarding international interaction not considered within more traditional IR theoretical paradigms. Poststructuralism "focus(es) on uncovering linguistic systems of meaning that precede intentionality."[75] These systems are a consequence of the "performativity of language," whereby the language used in discourse is and of itself the main structural component shaping the interactive context between assumed rational actors.[76] As with more conventional IR theories, the importance of language is portrayed within a game-theoretic model, whereby language use, "a form of action in and of itself," is tantamount to "making moves in a game" in which "the structure of meaning and interaction are dependent on rules shared with others."[77]

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[73] Karin M. Fierke, "Links across the Abyss: Language and Logic in International Relations," *International Studies Quarterly* 46, no. 3 (2002): 347.
[74] Fierke, "Links across the Abyss," 348.
[75] Ibid., 333.
[76] Francois Debrix, "Language as Criticism: Assessing the Merits of Speech Acts and Discursive Formations in International Relations," *New Political Science* 24, no. 2 (2002): 205.
[77] Fierke, "Links across the Abyss," 337.

Thus, language must become the "object of analysis;" both for its constitutive role in structuring and limiting multiple interaction possibilities, as well as its precipitating role in fostering actors' subsequent reactions.[78] Inaccurate depictions of climatic effects as correlates to conflict, whether written or spoken, can have second and third order effects likely not conceptualized by those who issued them, with possible severe ramifications to other actors involved.

Language's constitutive importance is best demonstrated by illuminating the significance of "speech acts," particularly: threats, promises, apologies, and use of the word "genocide."[79] For example, threat as an action must be deemed credible by the adversary receiving it. Although material capability by those delivering the threat is taken into consideration, it's the "social and communicative element of exchange (that) is more crucial."[80] "The power of the threat has more to do with a belief on the part of the threatened that the actor intends to carry out the act," thus, it is the persuasive language as an act itself that validates the threat.[81] Take for instance the utility of the word "genocide." Mere mentioning of the word by an international body, such as the UN, or an individual actor of significance, say a President or Prime Minister, is a "speech act of particular relevance," specifically, because its utterance "is an act rather than the mere application of a label insofar as it calls up a range of further acts that should follow."[82] Murderous ramifications were portrayed by the Clinton Administration's dereliction in not having ascribed the word to Rwandan massacres, "because once they did so they would (have) be(en) beholden to intervene in a way that they would not so long as the conflict was understood to be a case of local tribal warfare."[83] Refusing to use one word contributed to the deaths of

[78] Fierke, "Links across the Abyss," 341.
[79] Ibid., 347.
[80] Ibid., 347.
[81] Ibid., 347.
[82] Ibid., 347.
[83] Ibid., 348.

nearly one million Rwandans, providing perhaps the starkest evidence of the constitutive power of language.

Inaccurate utilization of words or phrases can be just as powerfully destructive as the aforementioned disastrous reluctance to use one. Ascribing false causal connections between climate change and conflict is dangerous for future refugee migration. Classifying refugees fleeing murderous regimes as actually fleeing a worsening climate situation reduces the subjective severity of the circumstances they were fleeing, with possible negative ramifications to their asylum claims. It also delegitimizes future climate migrants' asylum claims, those truly fleeing areas devastated by the effects of climate change. Such false verbal and written assertions have also enabled a murderous Assad regime. Affirming climate change as the main causal factor that initiated the Syrian conflict has allowed the regime to shift focus from its own administrative failures that were in fact the largest contribution to a conflict that has witnessed the deaths of hundreds of thousands.

Language's structural importance is portrayed through "the role of language" in establishment of "interactions or 'rules of the game'" within a game-theoretic model.[84] Rather than a traditional emphasis concerning "the rational preferences of participants," emphasis is instead placed on "the embeddedness of individual preferences in a prior structure of rules."[85] Instead of strategic actors imposing ideas on others via interaction, "one type of context or another emerges" from the grammar within the interaction, thereby establishing the structural "rules" between the two, or more, actors involved.[86] Unique to poststructuralism, this provides a new means of analyzing interaction. Rather than "assessing human behavior" based on "general

[84] Ibid., 348.
[85] Ibid., 348.
[86] Ibid., 349.

patterns," established "rules of the game" manifest from the language used within the actors' discourse, subsequently "constituting the meaningful context" in which that specific interaction will then evolve.[87] A historical example witnessed was Saddam Hussein's invasion of Kuwait having been compared to the actions of Adolf Hitler during WWII.[88] A Saddam Hussein likened to Adolf Hitler structured the context, whereby allowing an invasion of a sovereign Kuwait to go unpunished by the U.N. Security Council would have been tantamount to Neville Chamberlain's notorious appeasement of Hitler prior to WWII. Language structured the situational factors of the Gulf War by having legitimized armed conflict as a noble endeavor by a coalition intent on stopping a Middle Eastern tyrant commensurate to Hitler.

This same development of situational context, whereby language used thus constructs, and, thereby, constrains, future actions and reactions of relevant stakeholders, can be viewed within the climate change/variability and conflict nexus. In 2015, then European Union President Jean-Claude Juncker, discussing the massive influx of refugees to Europe, identified "climate change as one of the 'root causes' of the new migration," suggesting those arriving, majority Syrians, were "climate migrants and refugees."[89] His choice of phrase and words invited intimations of climate change as causal to both conflict and migration, thereby having constructed, situationally, historical parameters reminiscent of the Darfur conflict that lasted between 2003-2005. Caution must be respectively taken, more consideration given, to the power and potential impact of spoken word:

> Until a few years ago, the 2003-2005 war in Darfur was widely identified by Western commentators and policymakers as climate change-related – and even as the 'first climate war' – with UN Secretary General Ban Ki Moon going so far as to claim that 'the Darfur

[87] Milja Kurki, "Causes of A Divided Discipline: Rethinking of the Concept of Cause in International Relations Theory," *Review of International Studies* 32, no. 2 (2006): 194.
[88] Fierke, "Links across the Abyss," 349.
[89] Selby, J., Dahi, O., Frolich, C., & Hulme, M., (2017). "Climate Change and the Syrian War Revisited." *Political Geography, 60*, 233.

> conflict began as an ecological crisis, arising in part from climate change.' But such claims have since been discredited, with critics finding among other things that Darfur's war neither occurred during nor was directly preceded by drought; that there existed no solid evidence linking the Sahelian drought to anthropogenic climate change, in fact, possibly the opposite; and that claims like those of the UN Secretary General misrepresented the political and economic causes, and the essentially counter-insurgency character, of the Darfur war.[90]

Such causal ascriptions to refugees seeking asylum, those truthfully fleeing murderous, violent conflict in fear for their lives and those of their families, falsely as those fleeing areas disrupted climatically, invites wrongful comparison to those afflicted in Darfur; a conflict whose historical origins have been contentiously debated. Exactly as those migrants fleeing armed conflict in Sudan were disputed as fleeing climatic effects, the same is happening to modern migrants fleeing conflicts, such as the Syrian and Yemeni conflicts, today. False climate attributions to refugees' reasonings for seeking asylum invite a subjective lessening of the severity of the situations they are fleeing, rendering objective claims as questionable. This also delegitimizes those future asylum seekers fleeing actual areas climatically affected, if for no other reason than making questionable the asylum claims of the millions of refugees that preceded them. Language as an act and/or institutional construct, and the subsequent interpretations they elicit, have powerful implications. One "word" preceding refugee, whether fleeing "climate" or "conflict," can determine whether someone lives or dies. This is the power of language. The severity of the circumstances one turn of word or phrase, such as "caused by climate change," can create is monumental. Therefore, accurate identification and attribution of conflict causation must be considered carefully.

[90] Selby, J., et al. (2017). "Climate Change and the Syrian War Revisited," 233.

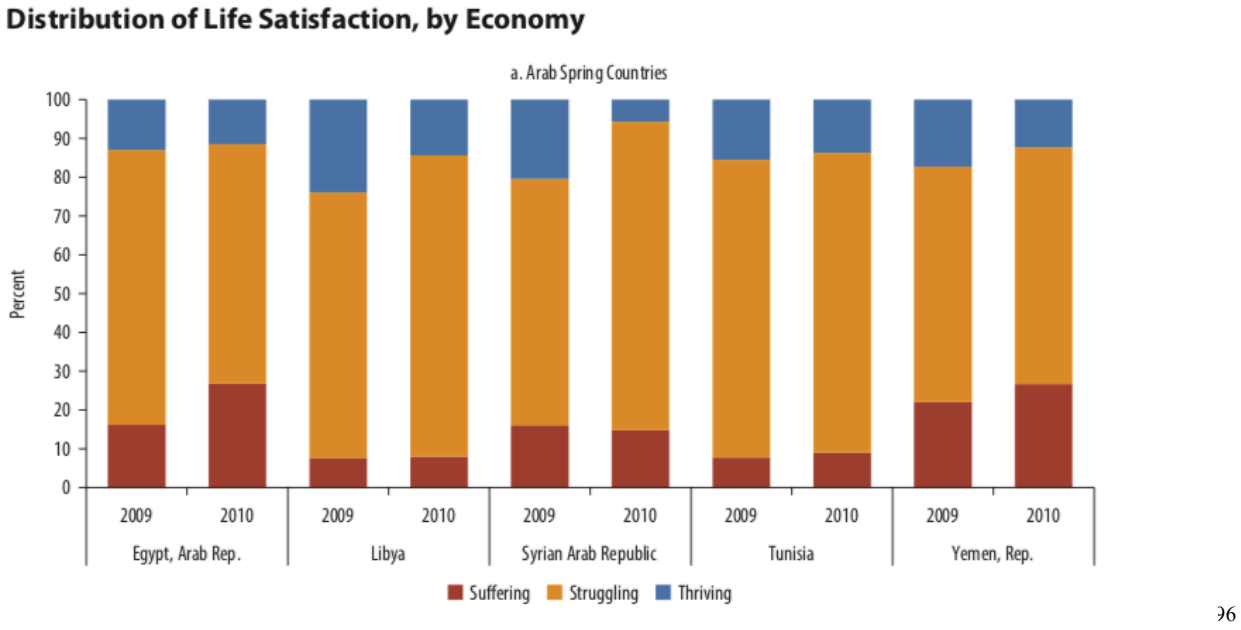
Data

The bulk collection of data and source material that was used to analyze the Syrian, Yemeni and Egyptian cases was acquired online. Scholarly, peer-reviewed articles were obtained through Colorado State University's online library, primarily through the databases therein. Specifically, CSU's internal Primo search engine, Academic Search Premier, EBSCO and Google Scholar. Documents, multi-media, and country specific information were gathered through a litany of online sources involving government agencies, intergovernmental organizations (IGOs), transnational organizations (TNOs) and non-governmental organizations (NGOs). Most recent information regarding Syria and Yemen's ongoing conflicts, and each countries' continuing humanitarian crises resulting thereof, was acquired through online news organizations, specifically, *The New York Times*, *Washington Post*, *National Public Radio (NPR)*, and the *British Broadcasting Corporation (BBC)*. These same sources were utilized for Egypt as well.

The World Bank Group's 2018 MENA Development Report, titled "Eruptions of Popular Anger: The Economics of the Arab Spring and its Aftermath," authored by Elena Ianchovichina, introduced yet unseen societal measurement surveys taken from each countries' citizenries. Ianchovichina detailed several "life evaluation" measurement indices, including: the preceding years before the Arab Spring; the year the Arab Spring began (2010/2011); and the subsequent years post Arab Spring. Of particular relevance were what the survey indicators provided about this study's countries of comparison, including the data's implications relational to both this study's original research question and subsequent hypotheses that resulted thereof.

According to Ianchovichina, the World Bank study "uses Cantril ladder scores from the Gallup World Poll surveys, which are available for nearly all Arab countries...during the period

2009-2012."[91] Right before the start of the Arab Spring, "average subjective well-being levels in most Arab economies were lower than those expected for their income levels;" particularly acute in the Syrian Arab Republic, the Republic of Yemen and the Egyptian Arab Republic.[92] "Distribution of life evaluation scores in the developing countries of the Middle East...in the period before the Arab Spring was skewed toward the categories of 'struggling' and 'suffering' people; that is, those whose life satisfaction scores were 7 or below."[93] In 2010, the year of the uprising, "all Arab Spring countries' share(s) of those 'suffering' and 'struggling' surpassed 80 percent."[94] Syria, Yemen and Egypt contained the highest percentages of these populations.[95] See figure 1 below.

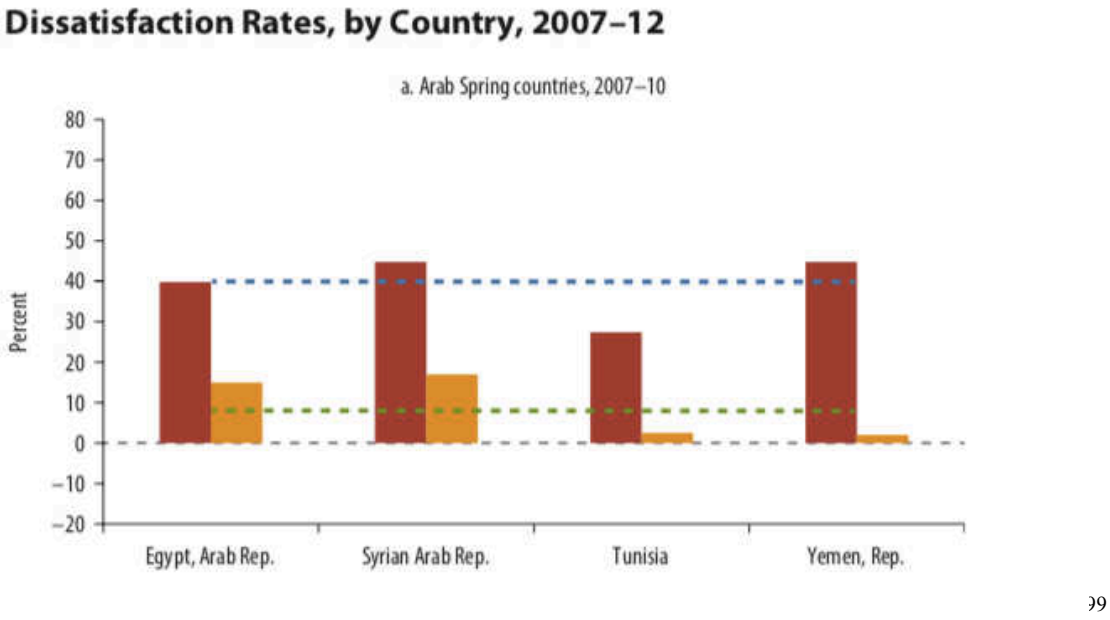


[96]

Figure 1- this graph shows the distribution of life satisfaction, by economy, within the 2018 World Bank MENA Report.

[91] Ianchovichina, E., (2018). "Eruptions of Popular Anger: The Economics of the Arab Spring and Its Aftermath." *MENA Development Report,* 66.
[92] Ianchovichina, E., (2018). "Eruptions of Popular Anger," 67.
[93] Ibid., 67.
[94] Ibid., 67.
[95] Ibid., 67.
[96] Ibid., 68.

Dissatisfaction **r**ates, by country, were also the most extreme in Arab Spring countries during the preceding years (2007-2010); and especially during the years after (2010-2012).[97] Once again, Syria, Yemen and Egypt led all countries. Before the Arab Spring, Syria, Yemen and Egypt's percentage rate of its population dissatisfied with their lives was nearly 50 percent.[98] See figure 2 below.

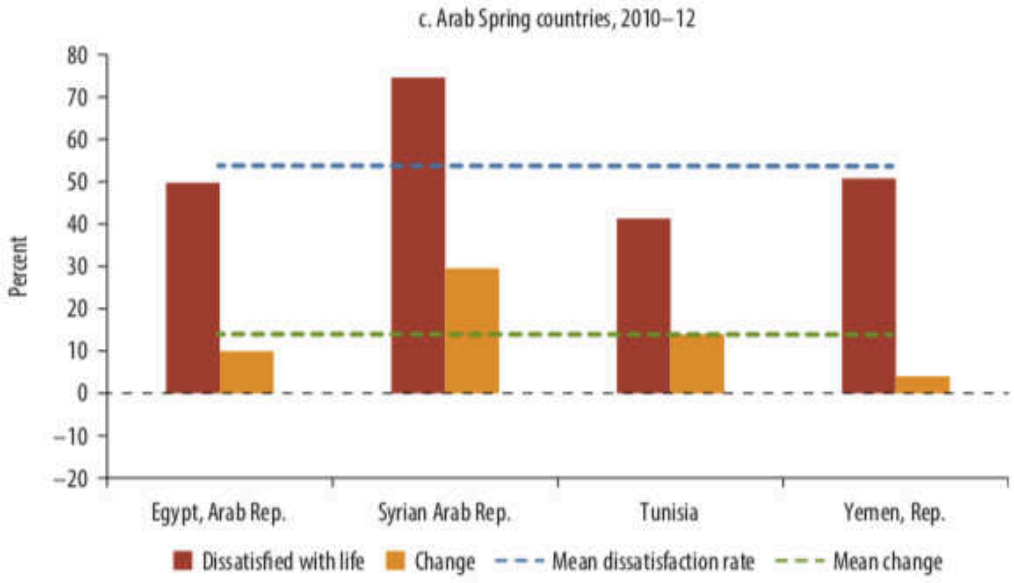


[99]

Figure 2- this graph shows the dissatisfaction rates, by country, 2007-12, within the 2018 World Bank MENA Report.

After it began, Syria topped nearly 80 percent, with both Yemen and Egypt nearing 50 percent.[100] See figure 3 below.

[97] Ibid., 80.
[98] Ibid., 80.
[99] Ibid., 80.
[100] Ibid., 80.

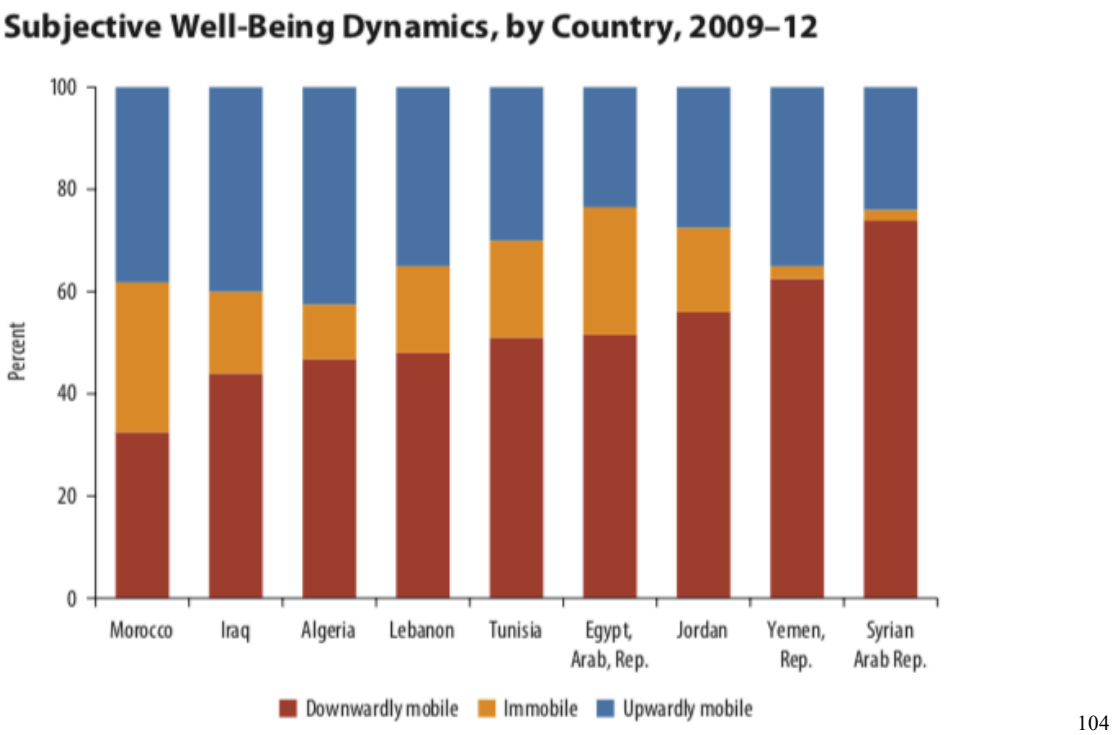


[101]

Figure 3- this graph shows the dissatisfaction rates, by country, 2010-12, within the 2018 World Bank MENA Report.

In yet another instance, Arab Spring countries between the years 2009-2012 experienced the most downward mobility in the entire world.[102] Again, Syria and Yemen topped the list, with Egypt following closely with the fourth of the largest downwardly mobile populations.[103] See figure 4 below.

[101] Ibid., 80.
[102] Ibid., 87.
[103] Ibid., 87.

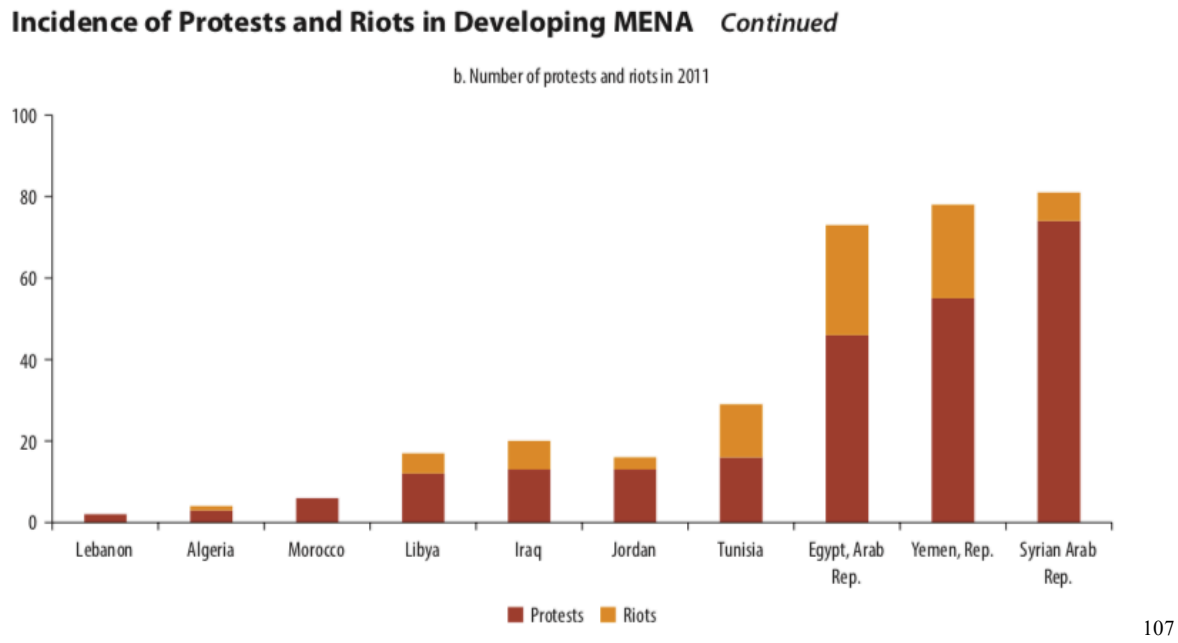


[104]

Figure 4- this graph shows the subjective well-being dynamics, by country, 2009-12, within the 2018 World Bank MENA Report.

The year 2011 saw an increase in both protests and riots across the Arab world, the largest increases having developed within the Arab Spring countries.[105] Syria, Yemen and Egypt, yet again, had the largest number of incidences involving both protests and riots.[106] See figure 5 below.

[104] Ibid., 87.
[105] Ibid., 120.
[106] Ibid., 121.

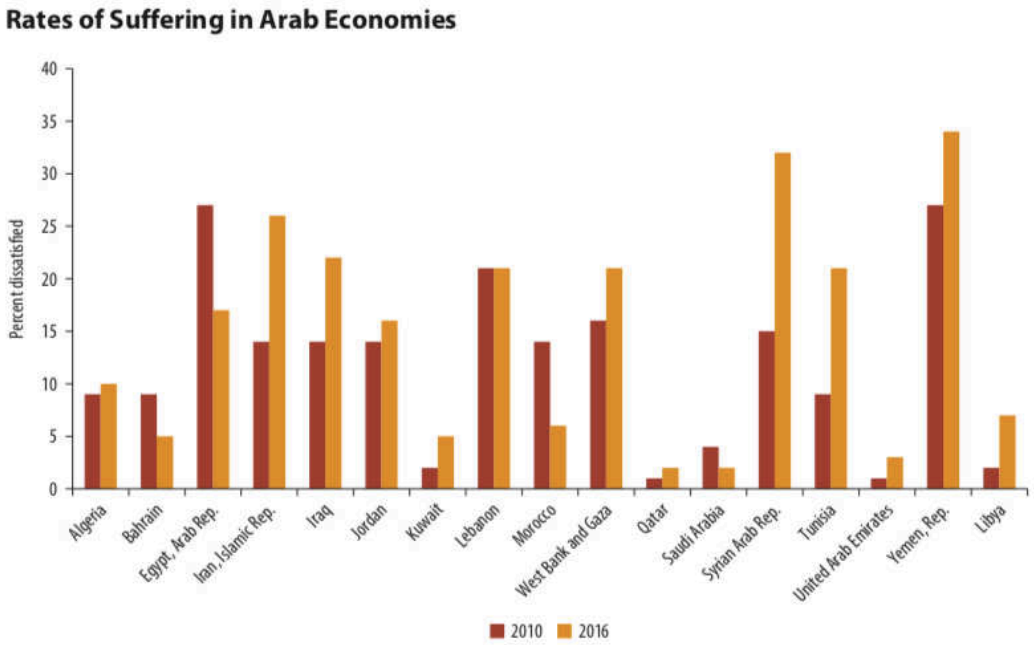


[107]

Figure 5- this graph shows the incidence of protests and riots in developing MENA, within the 2018 World Bank MENA Report.

"In 2011, the Arab people spoke loudly and clearly, voicing grievances crucial to their well-being and calling for change. Yet, the Arab uprisings did not deliver the change people hoped for; instead the situation deteriorated significantly."[108] Nowhere was this more recognizable than in the countries of Syria and Yemen. Both countries' "uprisings mutated into a civil war" and "many of the factors that made people unhappy before the Arab Spring... remained," and, as a consequence, "the economic situation worsened considerably.[109]" Between the years 2010-2016, the rates of suffering in nearly all Arab economies rose exponentially. Sadly, and lastly, the countries where much of the suffering was most manifest, again, was Syria, Yemen and Egypt.[110] See figure 6 below.

[107] Ibid., 121.
[108] Ibid., 127.
[109] Ibid., 127.
[110] Ibid., 147.



[111]

Figure 6- this graph shows the rates of suffering in Arab economies, 2010-16, within the 2018 World Bank MENA Report.

Methods

A qualitative research methodology was chosen rather than a quantitative approach primarily because "this type of observational method" contrasted from those "methods designed to produce data appropriate for statistical analysis."[112] Another reason for the qualitative approach was the flexibility inherent to its field research design allowing for modification.[113] For instance, I began my research operating under a theoretic whereby climate change/variability was considered the independent variable; conflict, as its dependent. However, as I progressed it became clear my research design required modification. The qualitative approach allowed for a flexible, easy transition towards case comparison, whereby each respective country's

[111] Ibid., 147.
[112] Babbie, E., (2014). *The Practice of Social Research: Fourteenth Edition*. Cenage Learning. 289.
[113] Babbie, E., (2014). *The Practice of Social Research: Fourteenth Edition*. Cenage Learning. 317.

precipitating causal factors that led to armed conflict were instead the independent variables requiring study, with conflict, as the dependent variable, remaining the same. The qualitative approach was also chosen because of its inexpensive nature. Whereby "other social science research methods may require costly equipment or an expensive research staff," the qualitative approach "typically can be undertaken by one researcher;" the exact circumstances that pertained to my study.[114] Another reason a qualitative research approach was chosen over a quantitative methodology were empirical evaluative limitations, specifically, the quantitative method's "inability to capture and quantify very complex causal linkages that span long time periods, or vary greatly in the temporal dimension between cases."[115] Of particular consequence relative to my research, was "to the extent that climatic conditions affect conflict dynamics only in interaction with very rare constellations of case-specific conditions," such as water drought in Syria and Yemen, and food drought in Egypt; therefore, detecting any "statistical significance" within my chosen "comparative, generalizable analytical design" wasn't really feasible.[116] The final reason for a chosen qualitative methodology was that most climate/conflict "quantitative studies rely on single operationalizations of climatic conditions and armed conflict, even if the theoretical framework rarely, if ever, is sufficiently detailed to rule out other dimensions," including, but not limited to, "widespread poverty, discriminatory political structures, dependence on rainfed agriculture, and/or a history of violence."[117]

[114] Ibid., 317.
[115] Buhaug, H., (2015). "Climate–Conflict Research: Some Reflections on the Way Forward," *Wiley Interdisciplinary Reviews: Climate Change*, 6, 270.
[116] Buhaug, H., (2015). "Climate–Conflict Research," 270.
[117] Wischnath, G., & Buhaug, H., (2014a). "On Climate Variability and Civil War in Asia." *Climatic Change*, *122*(4), 710.

The Comparative Case Study Method

The comparative case study method was utilized for this research because of its focus on three countries, and their similar linear progressions along a time-series design involving historical relevancies surrounding the Arab Spring. Unique to Syria and Yemen were crippling droughts that precipitated the onset of revolution; hostilities having commenced roughly within the same timeframe. Egypt also fell within this timeframe, though it was a drought in China that helped spur its onset of hostilities, amongst other societal factors. "It is only by reference to this larger set of cases that one can begin to think about which cases might be most appropriate for in-depth analysis."[118] The case study approach was selected because this study's main emphasis "is concerned primarily with causal inference, rather than with inferences that are descriptive or predictive in nature."[119] The comparative method was also used because of its ability in alleviating validity and reliability concerns. "In general, the problems of reliability and validity are smaller for the researcher who uses the comparative method. He/(she) can analyze the smaller number of cases more thoroughly, therefore, the researcher is less dependent on data that he/(she) cannot properly evaluate."[120]

Most Similar Systems Design Method

Most similar systems design method was used as an extension of the comparative case study method. "The most similar method is one of the oldest techniques of qualitative analysis, harking back to J.S. Mill's (1872) classic study *System of Logic.*"[121] The method "employs a minimum of two cases...the chosen...cases similar on all measured independent variables...with

[118] Seawright, J. & Gerring, J., (2008). "Case Selection Techniques in Case Study Research: A Menu of Qualitative and Quantitative Options." *Political Research Quarterly, 61*(2), 296.
[119] Seawright, J. & Gerring, J., (2008). "Case Selection Techniques in Case Study Research, 296.
[120] Lijphart, A., (1975). "The Comparable-Cases Strategy In Comparative Research." *Comparative Political Studies, 8*(2), 171.
[121] Seawright, J. & Gerring, J., (2008). "Case Selection Techniques in Case Study Research, 305.

all variables measured dichotomously.[122]" Pertinent to Syria, Yemen and Egypt, these variables consisted of drought and yet unidentified precipitating causal factors that contributed to each countries' respective revolutions and their similar temporal frameworks through the initiation of the Arab Spring. "The more similar two or more (cases) are with respect to crucial variables...the better able is the investigator to isolate and analyze the influence of other variables that might account for the differences" the researcher "wishes to explain."[123]

Historical Document Analysis Method

The historical document analysis method was used in conjunction with the most similar systems design method and the overarching comparative case study method. "Like other analytical methods in qualitative research, document analysis requires that data be examined and interpreted in order to elicit meaning, gain understanding, and develop empirical knowledge."[124] "The analytic procedure entails finding, selecting, appraising, and synthesizing data contained in the documents," thereby yielding "data-excerpts, quotations, or entire passages" to be utilized further in pursuance of answering the research question.[125] Most importantly, the document analysis was "used in combination" with the aforementioned "other qualitative research methods as a means of triangulation- 'the combination of methodologies in the study of the same phenomenon.'"[126] Ultimately, "the rationale for document analysis lied in...the immense value of documents in case study research and its usefulness as a stand-alone method for specialized forms of qualitative research," especially upon consideration of documents as "the only necessary data source for studies designed within an interpretive paradigm, as in hermeneutic

[122] Seawright, J. & Gerring, J., (2008). "Case Selection Techniques in Case Study Research, 304.
[123] Lijphart, A., (1975). "The Comparable-Cases Strategy In Comparative Research," 164.
[124] Bowen, G., (2009). "Document Analysis as a Qualitative Research Method." *Qualitative Research Journal, 9*(2), 27.
[125] Bowen, G., (2009). "Document Analysis as a Qualitative Research Method," 28.
[126] Ibid., 28.

inquiry; or it may simply be the only viable source, as in (the) historical and cross-cultural research" that was inherent within my comparative case study design.[127]

Historical Event Analysis Method

Finally**,** the historical event analysis method was used concomitantly with all other aforementioned research methods in pursuit of causal inferences derived from historical relevancies associated with the Syrian, Yemeni and Egyptian cases. Historical "explanation of how and why an event unfolds as it does requires a type of causal logic that is grounded in 'time' and in distinctively temporal processes."[128] Introducing narrative within the historical event analysis adds a temporal factor to an event's traditional historicity factors that "rely on logical comparisons of a few cases, analysis of statistical regularities of many cases, or logical subsumption of particular cases under broader historical generalizations."[129] "Knowledge of an event's temporality," i.e. Syria, Yemen and Egypt's droughts, as well as each countries' onset of hostilities having manifested at nearly the same time period consequential to the Arab Spring "awakening," is invaluable because it allows the analyst to pose the basic historical questions asked of any set of narrative sequences constituting an event: What is the causal influence of a temporal antecedent on what happened later in an event?" Answering this question involved a "synthesis of different kinds of reasoning and knowledge...ranging from the theoretically deductive and historically general to the historically contextual and particular, (and) from the temporal to the culturally interpretive."[130] Therefore, utilizing a historical event analysis involving a near identical temporal framework relative to the three countries' droughts, and the

[127] Ibid., 29.
[128] Griffin, L., (1993). "Event-Structure Analysis and Causal Interpretation in Historical Sociology." *American Journal of Sociology, 98*(5), 1098-1099.
[129] Griffin, L., (1993). "Event-Structure Analysis and Causal Interpretation in Historical Sociology," 1099.
[130] Ibid., 1100.

beginning of each countries' uprisings resulting from the start of the Arab Spring, allowed for further analyses of the causal interpretations of each countries' respective, precipitating causal factors that led to armed conflict.

Case Selection

Based on the figures and evidence from the World Bank, Syria, Yemen and Egypt before, during, and after the Arab Spring, consecutively ranked nearly the highest out of all Arab Spring participatory countries in every single measurable "distribution of life evaluation" index. Each countries' citizenries contained the highest percentages of those: suffering; demonstrating overall life dissatisfaction; economically downwardly mobile; and participating in protests and riots. Syria and Yemen's rebellions, in contrast to all other Arab Spring countries, also transitioned into full-fledged civil wars. While Tunisia, Libya, and Egypt did witness smaller instances of internecine violence, they in no way compare to the national/subnational warfare, and subsequent humanitarian disasters, inherent to both the Syrian and Yemeni armed conflicts still ongoing today. Of particular significance relative to these findings were the World Bank indicators denoting complete societal and economic dissatisfaction within each country *prior* to the initiation of each nations' respective protests that evolved into conflict. This pre-revolution data offered compelling insight into possible societal breakdown within each nation. Therefore, Syria, Yemen and Egypt's damaging ascendency in overall citizenry dissatisfaction, encompassing all prewar "quality of life" measured indices, rendered each country useful cases for analysis.

In contrast to the other Arab Spring countries, Syria and Yemen also both suffered droughts for several years (2006-2010) before the onset of hostilities. Contrastingly, for Egypt, it was actually a drought in China that precipitated Egypt's descent into violence. Debates

surrounding the severity and causation of these droughts are as varied as the researchers providing their theoretical suppositions. Some identify the droughts as not only a direct consequence of climate change/variability, but also the main causal factor that led to war, such as "Al Gore's claim that climate change provides the 'underlying story of what caused the gates of hell to open in Syria.'"[131] Others dispute such intimations as spurious correlations, any attempts at assigning causal linkages between climatic effects and conflict as unscientific. "The very complexity and multiplicity of the possible pathways of which climate change is but a small part makes prediction impossible," its role only discernible "after the fact;" its "increased contributions to threats" unquantifiable.[132] Not contested is the fact that Syria, Yemen and Egypt did indeed suffer from drought; it did, in some way or another, contribute to the internal unrest brought by the Arab Spring; unrest that then exploded into armed conflict. Therefore, each countries' relationship with drought, and those drought's contributions to each countries' ongoing civil wars (except now Egypt) present, again, useful cases for analysis.

Case Description

Syria

Modern day Syria was born from the ashes of WWI. A former northern province of the Ottoman Empire, it became a French mandate protectorate administered by France until independence was granted in 1946.[133] Political stability was virtually nonexistent until 1958 when, following a series of military coups, Syria and Egypt united in formation of the United Arab Republic.[134] Three years later the countries split, the Syrian Arab Republic once again

[131] Selby, J., et al. (2017). "Climate Change and the Syrian War Revisited," 233.
[132] De Châtel, F., (2014). "The Role of Drought and Climate Change in the Syrian Uprising: Untangling the Triggers of the Revolution." *Middle Eastern Studies*, *50*(4), 524.
[133] CIA World Factbook. (2020). Syria.
[134] CIA World Factbook. (2020). Syria.

reestablished in 1961.[135] 1n the 1967 Arab-Israeli War, Syria lost the Golan Heights to Israel in the largest tank battle seen since WWII. In 1970, a member of the minority Alawi sect (Shia) and Socialist Baath Party, Hafiz Assad seized power in a bloodless coup.[136] Following his death 30 years later, his son Bashar, a London-trained optometrist, was approved as the nation's new President during a 2000 referendum. In 2007, his second term as President was granted, again, through popular referendum.[137] In early 2011, inspired by the popular revolt in Tunisia, begun after street vender Mohamed Bouazizi's self-immolation in late 2010, Syria joined what would soon become known as the Arab Spring. The country has been mired in chaos ever since.

Yemen

Modern day Yemen was also born from the ashes of WWI. A bifurcated nation, North Yemen was a former province of the Ottoman Empire that became independent after the signing of the 1918 armistice that both ended the "Great War" and facilitated the dissolution of the empire.[138] What would become known as South Yemen had been a British protectorate since the 19th century, its formalized status as a nation occurring after the British left in 1967.[139] A little over two decades later, 1990 witnessed the merging of the two nations into one, formally recognized as the Republic of Yemen.[140] A secessionist movement in the southern region materialized in 1994, but was rapidly subdued.[141] In 2004, fighting between the Saudi backed government, ran then by former President Saleh, and Houthi rebels (of the minority, Zaydi Shia sect), purportedly backed by Iran, began in the northwest and continued intermittently until the

[135] Ibid.
[136] Ibid.
[137] Ibid.
[138] CIA World Factbook. (2020). Yemen.
[139] CIA World Factbook. (2020). Yemen.
[140] Ibid.
[141] Ibid.

year 2010.[142] Inspired by the Tunisian and Egyptian protests that developed after Bouazizi's self-immolation, the catalyst that initiated the start of the Arab Spring, Yemenis began rallying for the expulsion of Saleh as President in late January 2011.[143] By February, protests calling for Saleh's ouster transitioned into violence. Attempted mediation of the crisis by the Gulf Cooperation Council (GGC) occurred in April, through a proposed initiative whereby Saleh would concede power to his then vice President, Mansur al-Hadi, in return for immunity against future prosecution.[144] Saleh agreed, and after an uncontested February 2012 election victory by al-Hadi, Saleh formally transferred presidential authority to the victor.[145] The next month an initiative began, a National Dialogue Conference (NDC) calling for a nationwide discussion regarding political, constitutional, and socio-economic issues.[146] Perceived disenfranchisement by the Houthis within the entire process, their grievances unanswered, they united with Saleh and his forces and began a military offensive to take the capital, Sana'a.[147] Al-Hadi fled first to Oman, then on to Saudi Arabia, whereby he asked for GCC help in presidential reinstatement.[148] A coalition was formed, headed by Saudi Arabia, that included help from the United States, to regain control of Yemen. Airstrikes began in March 2015 by the Saudi-led coalition and have continued ever since.[149] Saleh was killed by the very Houthi forces he had aligned with in 2017.[150] The devastation of the conflict has contributed to a country on the verge of famine and the worst ongoing humanitarian crisis in the world today.

[142] Ibid.
[143] Ibid.
[144] Ibid.
[145] Ibid.
[146] Ibid.
[147] Ibid.
[148] Ibid.
[149] Ibid.
[150] Ibid.

Egypt

Egypt is a presidential republic led by president Abdelfattah Elsisi. Its legislature consists of a unicameral House of Representatives. The country's judiciary is the Supreme Constitutional court consisting of the court president and 10 justices. Economically, Egypt is "bisected by the highly fertile Nile Valley, where most economic activity takes place. Unemployment and high inflation restrict economic growth." The country's Gross Domestic Product (GDP) per capita, as of 2017, is $12,700. Its total land area covers 1,001,450 sq km, with land accounting for 995,450 sq km; and water 6,000 sq km. Egypt's population, as of 2021, stands at 104.1 million. The vast majority is Sunni Muslim, at 90 percent, with roughly 10 percent being Christian (mostly Coptic). Its urban population is 42.8 percent of the total population.[151]

The predictable regularity of the annual Nile river flood, in tandem with the semi isolating factors provided by its eastern and western deserts, produced one of the world's great civilizations.[152] A kingdom arose circa 3200 B.C., followed by a series of dynasties that ruled for the next three millennia.[153] The last dynasty fell to the Persians in 341 B.C. The introduction of Islam and the Arabic language by the Arabs came about in the 7th century, the Arabs subsequently ruling for the next six centuries. The Mamluks gained power around 1250, maintaining a semblance of power even after the Ottoman Turks' conquest of Egypt in 1517. Construction of the Suez Canal in 1869 witnessed Egypt becoming an important world transportation hub.[154] Although the British seized the government in 1882 in order to "maintain

[151] CIA World Factbook. (2021). Egypt.
[152] CIA World Factbook. (2021). Egypt.
[153] Ibid.
[154] Ibid.

its investments," nominal allegiance to the Ottoman Empire continued until 1914.[155] Egypt gained its independence from Britain in 1952. Egypt has the largest population in the Arab world; its continued growth, "limited arable land, and dependence on the Nile all continue to overtax resources and stress society."[156]

Inspired by Tunisia, the first Arab country to revolt after the aforementioned street vender Mohamed Bouazizi's self-immolation in late 2010 that initiated what became known as the Arab Spring, opposition groups within Egypt began staging labor strikes and demonstrations nationwide, subsequently leading to the former president Hosni Mubarak's ouster.[157] The Egyptian military maintained interim power until a new legislature was inaugurated in 2012. Although the Muslim Brotherhood had indicated they would not run a candidate for the presidency, they did just that, and Muhamad Mursi won the presidency during the same year. As Mursi consolidated power and moved to implement changes that would solidify and strengthen that power, protests emerged in 2013 that led to a military intervention effecting his removal from power and subsequent incarceration, where he remains to this day.[158] In a January 2014 referendum, voters approved a new constitution, and in May of the same year former defense minister Abdelfattah Elsisi was elected president.[159] Elsisi was reelected for a second, four-year term in March 2019. One year later, in another national referendum, Egypt approved "a set of constitutional amendments extending Elsisi's term in office through 2024 and possibly through 2030 if reelected for a third term."[160] Although Egypt's government is listed as a presidential republic, recent elections of Elsisi have been disputed. Also, the aforementioned legislative

[155] Ibid.
[156] Ibid.
[157] Ibid.
[158] Falk, R., (2016). "Rethinking the Arab Spring: Uprisings, Counterrevolution, Chaos and Global Reverberations." *Third World Quarterly*, *37*(12), 2325.
[159] CIA World Factbook. (2020). Egypt.
[160] CIA World Factbook. (2020). Egypt.

changes that will allow him to retain power, possibly until 2030, allude to authoritarian vestiges reminiscent of the Mubarak era.

Case Analyses

Syria

A dichotomous paradigm existed within the Syria climate change/variability and conflict nexus. There were those who had traditionally argued for assigning causal linkages between anthropogenic climate change and the Syrian conflict, and those who had systematically refuted such assumptions. The most prolific research arguing for such correlations involved three distinct studies that provided the "underpinning evidence for the Syria-climate conflict thesis."[161] First, was "a two page briefing document by Francesco Femia and Caitlin Werrell of the Center for Climate and Security in Washington DC which, despite its brevity, was the primary reference point for proponents of the thesis up until 2015; this briefing has subsequently been extended and published in peer-reviewed form," a 2015 article titled, "Did We See It Coming: State Fragility, Climate Vulnerability, and the Uprisings in Syria and Egypt."[162] The second was "a peer-reviewed article by Peter Gleick, one of the foremost scholars of water issues worldwide," a 2014 article titled, "Water, Drought, Climate Change, and Conflict in Syria."[163] The last was "a further peer-reviewed article by Colin Kelley and colleagues, mostly earth scientists at the universities of California and Columbia," in their 2015 article, titled, "Climate Change in the Fertile Crescent and Implications of the Recent Syrian Drought."[164] This last article stands in contrast to its two predecessors in three distinct ways: (1) for its publication in the respected *Proceedings of the National Academy of Science*; (2) having been the only one to have deployed

[161] Selby, J., et al., (2017). "Climate Change and the Syrian War Revisited," 233.
[162] Selby, J., et al., (2017). "Climate Change and the Syrian War Revisited," 233.
[163] Ibid., 233.
[164] Ibid., 233.

climate modelling; and (3) the extensive reporting that followed its determination of climate change as "implicated" in the onset of Syria's armed conflict having made it "one of the top ten most media-cited climate change studies of recent years."[165]

Those who stood in marked refutation of the researchers' findings mentioned above were Jan Selby, Omar Dahi, Christiane Frohlich, and Mike Hulme. Their collective 2017 article, titled, "Climate Change and the Syrian Civil War Revisited," offered systematic interrogation and detailed refutation of each and every climate association, purportedly causal or otherwise, reported by the aforementioned Femia and Werrell duo, and Gleick and Kelley et al.; cited unceremoniously as "FGK" throughout the rest of Selby et al.'s 2017 study.[166] Another was Francesco De Chatel and his 2014 study, titled "The Role of Drought and Climate Change in the Syrian Uprising: Untangling the Triggers of the Revolution." De Chatel offered a comprehensive look into Syria's drought in which he ultimately identified it as an exogenous exacerbate that undoubtedly contributed to, but in no way could be seen as causal to, the conflict that eventually manifested.

Relevant to my first hypothesis, Selby et al.'s research convinced me that the "severe" Syrian 2006-2010 drought that preceded conflict was not nearly of the severity initially posited by early researchers, nor a result of any identifiable long-term weather trend. Thus, its subjective severity notwithstanding, the drought had to be a manifestation derived from human auspices. This was one area in which all relevant material reviewed within my historical event and document analyses positively converged. The drought's causation and its subsequent contributory effects to conflict were actually a result of a confluence of events "contextualized...in the broader framework of: (a) the economic reforms and market

[165] Ibid., 233.
[166] Ibid., 233.

liberalization that were initiated in the 2000s as part of Syria's transition to a social market economy, (b) the recent history of agricultural development and water management in Syria and the large-scale mismanagement of resources over the last 50 years and (c) the Syrian regime's failure to acknowledge and address the impact of water mismanagement."[167]

Syria, and the majority of what's considered as the Fertile Crescent for that matter, is a semi-arid region in which drought is but one structural component within a dynamic ecosystem.[168] Over the last half century, Syria has witnessed 25 years of drought, roughly 40 percent of the years spanning from 1961 to 2009.[169] Mean drought duration lasted approximately 4 ½ years, with one anomalous figure lasting nearly a decade in the 1970's.[170] Drought frequency only increased in 1 of 5 of Syria's agricultural zones over the last 2 decades, in the north-eastern Jezira region. Disregarding the other 4 areas, some of which even had higher than average precipitation, it was this governate's drought data that was primarily used to emphasize misperceived causal linkages between climate change and conflict.[171] Within the 4-year drought period, 2007-2008 was the worst. Some areas saw rainfall reductions of over 60 percent, which contributed to food shortages that year, forcing Syria to import food staples such as wheat for the first time in 15 years.[172] However, the next two years of Syria's reportedly worst drought ever recorded, witnessed higher than average mean rainfall levels, contradicting assertions made by Femia and Werrell, and Gleick and Kelley et al.[173] While widespread food shortages persisted up to and through the initial protests, such food scarcity did not result from a lack of precipitation.

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[167] De Châtel, F., (2014). "The Role of Drought and Climate Change in the Syrian Uprising," 521-522.
[168] De Châtel, F., (2014). "The Role of Drought and Climate Change in the Syrian Uprising," 523.
[169] Ibid., 523.
[170] Ibid., 523.
[171] Selby, J., et al., (2017). "Climate Change and the Syrian War Revisited," 234.
[172] De Châtel, F., (2014). "The Role of Drought and Climate Change in the Syrian Uprising," 524.
[173] Selby, J., et al., (2017). "Climate Change and the Syrian War Revisited," 234.

Similar to other MENA countries, Syria's water policy since the 1950's has utilized a "supply-side approach" focusing on "dam construction and irrigation" in order to increase agricultural yields to feed what was then an ever-expanding population."[174] As of 2014, Syria's population had increased from 3.3 million in 1950 to over 21.4 million.[175] Sustaining such an ever-widening populace resulted in unconstrained groundwater extraction manifesting over several decades that severely depleted Syria's aquifers, thereby exceeding the "natural limits of the country's resources.[176] 60 percent of Syria's agricultural surface area is irrigated by groundwater, with 90 percent of the nation's water used in the same endeavor.[177] Over 80 percent of irrigated land still uses antiquated flooding techniques contributing to a systemic inefficiency and water losses varying between 10 to 60 percent.[178] Syria's governmental water management administrative unit encouraged such practices since the 1960's, when cheap diesel motor pumps became available for widespread usage by farmers in groundwater extraction.[179] Unregulated drilling of unlicensed wells depleted groundwater so completely that a four-year drought like the one that hit in 2006, a completely normal duration historically, increased the perceived severity of the drought and its associated effects.[180] Water allocation mismanagement by Syrian authorities was the true cause of the drought's devastation.

Finally, it was Assad's failed attempt to integrate Syria's economy into the globalized economy and "accession into the World Trade Organization," began in 2000, that was the true contribution to the civil war that would eventually manifest.[181] Syria phased out subsidies to

[174] De Châtel, F., (2014). "The Role of Drought and Climate Change in the Syrian Uprising," 529.
[175] De Châtel, F., (2014). "The Role of Drought and Climate Change in the Syrian Uprising," 530.
[176] Ibid., 529.
[177] Ibid., 530.
[178] Ibid., 530.
[179] Ibid., 531.
[180] Selby, J., et al., (2017). "Climate Change and the Syrian War Revisited," 236.
[181] De Châtel, F., (2014). "The Role of Drought and Climate Change in the Syrian Uprising," 526.

individual farmers to consolidate the agricultural sector to one ran by conglomerates in an attempt to transform their economy. This loss of subsidies led to a 342 percent increase in the price of fuel and upwards to a 450 percent increase in fertilizer costs in 2008.[182] Farming became unsustainable for nearly half a million Syrians between the years 2000-2010, leading to loss of livelihoods and massive internal migration by former agricultural sector workers to the cities in pursuit of new economic opportunity or social services such as unemployment benefits.[183] Neither were available, creating a multitude of poverty stricken and hungry citizens. Historically, conditions rife for revolution.

Yemen

The drought that preceded Yemeni's ongoing conflict was not nearly as controversial as the climate change/variability and conflictual discourse that surrounded the Syrian debate. Like Syria, Yemen is an arid region whereby drought is a natural occurrence within its ecological landscape.[184] Empirical evidence derived from my document and historical event analyses found absolutely no causal connections between climatic effects and Yemen's drought, nor any identification of any type of long-term drying trend. Considering the aforementioned, relevant to my original hypothesis, the drought then had to be a manifestation conditioned under human auspices. This is exactly what I found. Similar to Syria, the severity of Yemen's drought was markedly increased by a historical mismanagement of water resources, unconstrained groundwater extraction, and a continuous, burgeoning population that led to the water scarcity Yemen struggles with today. One contrast was identified, specifically Qat, a mildly stimulative

[182] Selby, J., et al., (2017). "Climate Change and the Syrian War Revisited," 238.
[183] De Châtel, F., (2014). "The Role of Drought and Climate Change in the Syrian Uprising," 526.
[184] Haidera, M., Alhakemi, S., Noaman, A., Al Kebsi, A., Noaman, A., Fencl, A., Swartz, C., (2011). "Water Scarcity and Climate Change Adaptation for Yemen's Vulnerable Communities." *Local Environment, 16*(5), 473.

narcotic, and the contributory effect its production played in Yemen's prewar drought, as well as its role in Yemen's continuing, current water scarcity crisis.

Yemen's history of water scarcity resulting from governmental ineptness in management of its water resources was strikingly similar to that of Syria's. Since the 1970's, "socioeconomic development in the region has emphasized irrigated agriculture reliant on groundwater extraction."[185] Unenforced conservation efforts led to over four decades of illegal drilling, groundwater depletion increasing simultaneous to technological advances that allowed for ever deeper drilling, contributing to unsustainable practices that disallowed for the replenishment of Yemen's aquifers. The result is many of Yemen's groundwater wells "are expected to go dry in the coming decade, as overdraft exceeds annual recharge by a factor of four to five."[186] Large population increases, and subsequent water consumptive needs, outpaced the natural aquifer replenishment cycles, thereby increasing the perceived severity of the drought that preceded Yemen's armed conflict that evolved from the country's earlier protests.

Unique to Yemen is the significance of Qat cultivation, both historically and continuously, and how it has contributed to the country's contemporary, water scarce situation. "Irrigated agriculture drives much of the scarcity, as it accounts for roughly 90% of total groundwater consumption."[187] Fertile land being extremely scarce in Yemen, "cropping decisions" have been "largely determined by water availability."[188] Disproportionately, especially in more recent years, allocation of this scant resource has been increasingly used in the

[185] Haidera, M. et al., (2011). "Water Scarcity and Climate Change Adaptation for Yemen's Vulnerable Communities," 476.
[186] Ibid., 476.
[187] Ibid., 474.
[188] Wiebelt, M., Breisinger, C., Ecker, O., Al-Riffai, P., Robertson, R. & Thile, R., (2013). "Compounding Food and Income Insecurity in Yemen." *Food Policy, 43*, 79.

"production of Qat rather than edible crops."[189] Spanning three decades, "between 1970 and 2000, Qat cultivation increased 13-fold (from 8000 to 103,000 ha)."[190] As of 2011, although Qat took up only "15% of Yemen's cultivated area, it consume(d) roughly 70% of the groundwater extracted."[191] Qat cultivation, both for domestic use by Yemenis, and sold to other MENA countries for export, was, and continues to be, the largest, most significant factor that contributed to drought conditions; both precipitous to Yemen's armed conflict, and the current water-scarce conditions witnessed today.

Egypt

In contrast to Syria and Yemen, Egypt's Arab Spring uprising was not precipitated by an internal drought, but rather an external drought in mainland China that occurred during 2010. "In what could be called 'hazard globalization,' a once-in-a-century winter drought in China reduced global wheat supply and contributed to global wheat shortages and skyrocketing bread prices in Egypt, the world's largest wheat importer."[192] Egypt is one of the largest consumers of bread, however, "the country grows only about 60% of its 14 million tons of wheat consumed annually."[193] Sternberg's 2013 essay examined "the link between natural hazards, food security, and political stability in two developing countries- China and Egypt- and reflects on the links between climate events and social processes."[194]

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[189] Haidera, M. et al., (2011). "Water Scarcity and Climate Change Adaptation for Yemen's Vulnerable Communities," 474.
[190] Haidera, M. et al., (2011). "Water Scarcity and Climate Change Adaptation for Yemen's Vulnerable Communities," 474.
[191] Ibid., 474.
[192] Sternberg, T., (2013). "Chinese Drought, Wheat, and the Egyptian Uprising: How a Localized Hazard Became Globalized." *Center for American Progress*, 7.
[193] Berazneva, J. & Lee, D., (2013). "Explaining the African Food Riots of 2007-2008: An Empirical Analysis." *Food Policy*, *39*, 35.
[194] Sternberg, T., (2013). "Chinese Drought, Wheat, and the Egyptian Uprising," 7.

According to Sternberg, bread is an intrinsic food staple in Egypt, accounting for "one-third of the caloric intake" of Egypt's citizenry, "a country where 38% of income is spent on food."[195] In February 2011, global wheat prices doubled, "from 157$/ metric ton in June 2010 to $326/ metric ton" by February, having a significant impact on Egypt's "food supply and availability."[196] Shifting weather patterns in 2010 curtailed the global wheat supply by diminishing wheat yields in countries such as Russia, Ukraine, Canada, Australia and China.[197] China, "the largest wheat producer and consumer in the world, experienced drought in its growing eastern region."[198] In order to mitigate any potential famine, such as happened between 1958-1961, China not only stopped its export of wheat, it even purchased wheat on the international market to compensate for any potential drought losses. "A fraction (6% to 18%) of annual global wheat production is traded across borders, so any decrease in world supply contributes to a sharp rise in wheat prices and has a serious economic impact in countries such as Egypt, the largest wheat importer in the world."[199]

Unlike Syria and Yemen's drought that precipitated conflict, it was the extreme drought in China that led to the food shortages that contributed to the Egyptian grievances that eventually evolved into the Egyptian uprisings. It exemplified "how a regional climate event can have both a regional and global impact."[200] The decreased yield in China "contributed to a series of governmental actions that influenced economic and political conditions" in Egypt, and "contributed to the skyrocketing cost of wheat" which had a dramatic impact on the proliferation of the Egyptian uprising.[201]

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[195] Sternberg, T., (2013). "Chinese Drought, Wheat, and the Egyptian Uprising," 7.
[196] Ibid, 7.
[197] Ibid, 8.
[198] Ibid, 8.
[199] Ibid, 8.
[200] Ibid, 8.
[201] Ibid, 8.

> This chain of events and actions illuminate how government effectiveness- or lack thereof- in two autocratic regimes resulted in opposite outcomes and reflects how in today's interconnected world, natural hazards can influence economic (price), political (government stability), and human (food supply) systems on an international scale.[202]

Climate change/ variability that led to the Syrian and Yemeni droughts exacerbated, rather than created, already simmering socio-economic and political tensions that would manifest into each countries' respective onset of hostilities during the Arab Spring. Similarly, it was China's drought that exacerbated Egyptian tensions that ultimately led to Mubarak's ouster and the rise of General Elsisi. Other factors, such as population density, urbanization, age, employment status, and those intimating government disillusion, drove the uprisings in Egypt. World Bank (2018) data verifies that the average Egyptian protestor "was single, educated, relatively young (younger than 44), middle class, urban, and male."[203] Participants to the Egyptian uprising were larger for those who were fully employed versus their unemployed counterparts. "These statistics indicate that protestors had a wider set of grievances, not just labor market," or food shortage, "concerns, and that support for the protests came from a diverse group of mostly young people who were middle class or affluent."[204] Although climate change/ variability was perhaps contributory towards the Chinese drought that impacted Egypt's uprising, it was certainly not the catalyst that fomented Egypt's unrest.

Discussion

Climate change/variability did not cause the Syrian and Yemeni droughts, the perceived severity of either, or serve as a catalyst in initiation of either the Syrian or Yemeni armed conflicts. While the Chinese drought that precipitated Egypt's wheat shortages and eventual uprising may have been a product of climate change/variability, it cannot be viewed as the sole

[202] Ibid, 10.
[203] Ianchovichina, E., (2018). "Eruptions of Popular Anger," 117.
[204] Ianchovichina, E., (2018). "Eruptions of Popular Anger," 117.

catalyst for rebellion. Rather, the droughts and their subsequent effects were exacerbates to already aggrieved societal situations marked by underlying political, socio-economic, tribal and religious difficulties inherent within each country. The droughts' contributions to conflict were the added tension derived from environmental stressors that further enflamed the revolutionary fervor manifested from the unique confluence of consecutive events that marked the beginning of the historic Arab "awakening" that was the Arab Spring. The Syrian and Yemeni droughts and their seemingly extreme severities resulted from human endeavors, not any sort of climate variability induced by climate change. In Syria, this consisted of a half century of unrelenting water resource depletion and a failed economic market liberalization strategy initiated by Assad. In Yemen, it was caused by the same unrelenting, unsustainable water extraction policies exhausting aquifers, water allocation mismanagement by government authorities spanning decades, as well as inefficient irrigative practices used in the cultivation of the mild narcotic, Qat. Though Egypt's wheat shortages were a consequence of decreased yields brought about by China's 2010 drought; drought, in and of itself, cannot be viewed as the primary initiator of Egyptian revolutionary fervor. Rather, China's drought contributed to already simmering Egyptian socio-political and socio-economic issues that predated the uprising. "According to 'Worldwide Governance Indicators,' a dataset maintained by the World Bank, in 2010 Egypt ranked in the bottom 14 percent of 215 countries and territories surveyed on measures of accountability, freedom of expression, and public participation in government."[205] A similar Freedom House assessment "for the 2007-2010 period gauging public accountability, civil liberties, rule of law, anticorruption efforts, and government transparency scored Egypt...in the

[205] Michel, D. & Yacoubian, M., (2013). "Sustaining the Spring: Economic Challenges, Environmental Risks, and Green Growth." *Center for American Progress*, 42.

lowest one-third of all countries evaluated."[206] It's these measurable indices, not drought, that allude to the main causal factors that precipitated the Egyptian uprisings. Empirical analysis of the 2018 World Bank "life evaluation" survey indices, pre-Arab Spring, in which Syria, Yemen and Egypt consecutively ranked the worst across all measurable evaluations, corroborated the exacerbating effects drought had in facilitation of armed conflict. Syrian, Yemeni and Egyptian citizens already felt disenfranchised and marginalized; economically, socially, and politically; *before* any manifestation of the protests and riots that defined the early Arab Spring. There is no doubt drought contributed to that marginalization and disenfranchisement. However, in no way conceivable can drought, regardless of its climatic origins, ever be considered as the primary, precipitating causal factor that would eventually lead to Egypt's ouster of Mubarak, as well as the sustained armed conflicts, yet ongoing, both Syria and Yemen are still witnessing today.

Conclusion

Ascriptions of false, causal connections between climate change and conflict sets a dangerous precedent for future refugee migration. Classification of refugees fleeing actual, murderous regimes or circumstances as "climate migrants" trying to escape areas negatively impacted climatically, reduces the subjective severity of the dangerous situations they were fleeing. Potential harmful ramifications to their asylum claims could result, consequential of a reduction in perceived threat to those migrants' lives by Consular officials. It also delegitimizes actual, future climate refugees' asylum claims, those truly fleeing areas devastated by the effects of climate change/variability. Responsible consideration of the latest 2018 IPCC Special Report indicates that absent aggressive GHG abatement measures, these are refugee situations that are increasingly likely to manifest. Such false assertions also detract from placing responsibility for

[206] Michel, D. & Yacoubian, M., (2013). "Sustaining the Spring," 42.

the deaths of hundreds of thousands, and the displacement of millions, where it should be placed: with the Syrian and Yemeni governments. Affirming climate change as the main causal factor that initiated the Syrian conflict allows the regime to shift focus from its own administrative failures that were in fact the largest contribution to a conflict that has witnessed the deaths of hundreds of thousands. Similarly, false attribution of climate effects to Yemen's calamitous situation allows the worst humanitarian crisis in the world, involving famine conditions for millions of Yemenis, to be wrongly viewed within an environmental context. Propaganda detailing deaths and atrocities as resulting from indiscriminate climate phenomena shifts responsibility from where it should lay, with the myriad Yemeni civil war's belligerents and their egregious actions. Also, ascertainment of Egypt's social, economic, and political maladies as primarily consequent of a Chinese drought disallows for the reckoning of the true causes that fomented rebellion during Egypt's "awakening." Finally, such false proclamations inhibit accurate advances to empirical knowledge that could be used in the future towards conflict mitigation and prevention. Implications for future climate refugees, and those fleeing violent conflict, demand accurate identification of conflict causation. To demand anything less as a member of a global citizenry is a dereliction of one's responsibility to humanity.

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