EXPLORING THE LINK BETWEEN CLIMATE CHANGE AND TERRORIST RECRUITMENT

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ABSTRACT

The Middle East is the region of the world suffering the most from environmental degradation, particularly from water issues. Environmental deterioration in the region contributes to the pre-existing local stresses, exacerbating the political, economical and social problems. The inability of regional governments to respond to these challenges only worsens the condition of the population, which lives in poverty. As a consequence of living in demoralizing conditions, citizens are more receptive to the appeals of ISIS. This terrorist organization claims to offer solution to their problems, by providing them employment and an emotional outlet for their desperation. Given that the environmental situation in the Middle East is predicted to worsen in the near future, ISIS — and perhaps other extremist groups — may exploit climatological grievances to strengthen their power. This paper contends that just as ISIS has used water crises to recruit members in the Middle East in the past, it may use the climatological crisis even more as a recruitment tool in the coming decade.

INTRODUCTION

The Link Between Climate Change and ISIS

The environmental crisis caused by climate change[1] affects certain regions of the world more than others. According to the World Economic Forum, the Middle East is one of the most impacted regions (Broom). Rising temperatures in the Middle East are increasing the frequency of natural disasters and making it harder for people to escape poverty. Global warming especially affects low-income communities because it leads to water scarcity and damages agriculture, their main source of sustenance. Such a fragile environment, added to the pre-existing regional instability within these areas, creates a perfect condition for terrorist[2] organisations — such as ISIS[3] — to exploit people's desperation and to persuade them to join the jihadis. What ISIS is offering to the vulnerable people affected by natural disasters is an emotional outlet for their frustration, protection, and also an employment opportunity.

The National Geographic Association has documented that ISIS has previously taken advantage of environmental degradation in failed states to recruit members. Moreover, scholars writing on terrorism have effectively argued that ISIS and other terrorists associations have taken advantage of people's desperation in order to recruit members in other non-environmental contexts (Babatunde, 2018; Mitts, 2019). Data collected by the Washington Quarterly supports that environmental effects in countries with inefficient governments and widespread poverty, such as Middle Eastern countries, created a context of deprivation that allowed the Islamic State to recruit 60-70% of its fighters (DuBois King, 2015, p. 154).

The correlation between water issues and ISIS recruitment is confirmed also by the fact that the countries with the most severe droughts and water shortages in the world (Saudi Arabia, Tunisia and Libya) are also the countries with the most ISIS foreign recruits (Abdel Jelil, 2018; Bodetti, 2019; Soria, 2013). Having exploited people's desperation in the past, it is reasonable to expect that ISIS will continue to exploit people's vulnerability caused by climate change in the Middle East in the future. This paper proposes that water related issues — such as droughts and water shortages — will help ISIS recruitment in the Middle East in the next decade[4].

LITERATURE REVIEW

This article will first look at scientific predictions about climate change in the Middle East, and it will also contribute to the literature analysing terrorist recruitment techniques.

The scientific community agrees on the fact that climate change is likely to get worse in the future. Douglas Broom, for the World Economic Forum, summarises significant data on climate change in the Middle East and its expected increase (Broom, 2019). Other sources have covered the same topic but the World Economic Forum is trusted because it relies on other significant sources, such as the World Bank, and because it provides one of the most detailed scientific data on the current environmental situation in the Middle East. Broom argues that

[1] Climate change is defined as "a long-term shift in global or regional climate patterns which often refers specifically to the rise in global temperatures from the mid-20th century to present" (National Geographic Society, 2019).

[2] David J. Whittaker offers a standard definition of terrorism. Terrorism is the "intentional use of violence against non-combatant civilians aimed at reaching political ends" (2004, p. 6).

[3] Mohamed E. Badar defines ISIS as the Islamic State of Iraq and Syria, also known as ISIL or Daesh (its arabic abbreviation) (2016). ISIS is an Islamic militant group and a former proto-state which carries out violent actions against civilians in order achieve its political aims. ISIS gained global visibility in 2014, when it invaded Iraq and captured Mosul. In the same year, ISIS's peak was reached with a territory of 110,000 square kilometers (42,000 sq mi) and a population of nearly 12 million (Jones, 2017). Between 2014 and 2017 it controlled significant areas of Iraq and Syria, together with Afghanistan, Nigeria, Libya, the Philippines, Egypt, Yemen and the DRC. ISIL's territory has declined substantially in almost every country since 2014, a result of the group's unpopularity and the military action taken against it. By late March 2019, ISIL territory in Syria was reduced to only the besieged 4,000 km2 (1,550 sq mi) central desert pocket (The Syrian Observatory for Human Rights, 2019).

[4] The time frame chosen is ten years because there is good operationalised data available concerning this period (Broom; Khan, 2013; Kortunov, 2019; NATO Strategic Direction South, 2019; World Bank).

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the Middle East will be highly impacted by climate change in the next 10 years, and it will continue to be affected even more in 80 years if measures are not taken. According to him, by 2025, 80-100 million people will be exposed to water stress in the Middle East and, before 2100, the region may become uninhabitable (Broom, 2019).

Building on the predictions given by the World Economic Forum will be useful for thinking about the future climate related possibilities for ISIS, or other terrorists groups, to recruit new members in the area. This paper focuses only on ISIS, however, it is significant to acknowledge that, in the future, other extremisms may emulate ISIS's strategies related to climate change. Other terrorist organisations — like Boko Haram[5] and Al Qaeda[6] — have already taken advantage of global warming to carry out propaganda. Therefore, water issues will be an opportunity for ISIS to enlarge its membership, for other existing terrorist associations to strengthen their power, and for new extremist organizations to emerge.

This research will also join the scholarly discussion about terrorist recruitment. Many important scholars have written and continue to write about terrorist recruitment techniques. Two important contributors are Tamara Mitts, a Political Scientist from Columbia University, and Olalekan Babatunde, a Research Fellow and peacebuilding practitioner at Nigeria's Institute for Peace and Conflict Resolution. These two scholars are especially useful because they both focus on how terrorism exploits local grievances to recruit new members.

Mitts's research "From Isolation to Radicalization: Anti-Muslim Hostility and Support for ISIS in the West" (Mitts, 2019) looks into ISIS recruitment techniques online while Babatunde's work, published in the article "The Recruitment Mode of the Boko Haram Terrorist Group in Nigeria" (Mitts, 2019), looks at on-the-field recruitment activities carried out by Boko Haram. Mitts study analyzes the use of Twitter of Western foreign fighters, a vehicle which intensifies the mental and emotional connection between fighters and possible recruits. Mitts concludes that individuals tend to seek comfort and acceptance in times of desperation; therefore, they are more likely to fall for the messages promulgated by ISIS members (Mitts, 2019). Babatunde (2018) provides insights about Boko Haram's modes of recruitment — which are useful to emphasize that ISIS is not the only terrorist organization exploiting climate change related issues to enlarge its membership. Thus, Boko Haram is operating in a similar way as ISIS, demonstrating that global warming fueling terrorist recruitment is a widespread problem and that both organizations exploit local grievances to function.

Neither scholars' work directly relates to climate change. Nonetheless, their research is relevant because it shows that there is an existing pattern in terrorist recruitment. Indeed, the two authors both agree that terrorist organizations - like ISIS and Boko Haram - exploit grievances in order to recruit new members. Given that the grievances connected to climate change are predicted to be the most exasperating problem in the Middle East in the next decade, they will likely be the number one target of terrorists organizations's recruiting operations (Kortunov, 2019).

Even if many scholars write about terrorist recruitment techniques, only a few explore the field of terrorist recruitment connected with climate change. This paper fills the existing literary gap because it sheds light on an aspect of ISIS recruitment which has not been sufficiently taken into account by relevant scholars in the field: the methods that ISIS uses in the Middle Eastern countries suffering from drought or water shortages (De Châtel, 2014; Gleick, 2015; Gleick, 2019).

THE SITUATION IN THE MIDDLE EAST

A Global Threat to Security

This research focuses on the case of ISIS because it poses the most urgent security risk of all the Islamic terrorist groups now centered in the Middle East (Gerges, 2017, p. 260; Lister, 2015, p. 3; Ogun, 2015, p. vii). Still today, there is no part of the world which can be considered fully immune from the influence of ISIS. Even if ISIS reached its peak in 2014, there is no doubt that it could rise again if it finds a suitable situation to do so. The environmental crisis, added to the regional state failure, has provided a useful opportunity for ISIS to recruit in the Middle East in the past (Bodetti, 2019; Maclay, 2015; Nett, 2016; Somers, 2019; Strozier, 2014). The expected water scarcity - due to growing populations and unsuitable water policies - will only fuel more such practices.

The growth of ISIS's recruitment led by climate change poses a significant global threat to security, especially in regions that are thorn by civil war and poverty. This is because, even if state failure in the Middle East may remain constant in the next ten years, climate change certainly will not. The risk of ISIS exploiting water issues will only grow worse with the projected effects of climate change in the next decade (DuBois King, 2015, p. 155). Thus, understanding the rhetoric (and grievances) of terrorist recruitment in the area is key to stopping it. An important question to ask, then, is what is the role of climate change in respect to all the other issues affecting the Middle Eastern region?

The Middle East: A Region of Many Grievances

It would be a mistake to focus exclusively on climate change and its effect on ISIS recruitment without taking into account many other pre-existing historical conditions, such as youth unemployment, civil war, state failure, extreme poverty and the overall inability of regional governments to respond to these issues. All these factors are inextricable, both as causes and effects. For instance, climate change exasperates unemployment, civil war and state failure.

Because of the urgent need to solve such invasive issues, citizens do not have the privilege to choose a more environmental friendly lifestyle and governments do not have climate change mitigation plans on their agenda in the short term and neither in the long term. Despite this, it should be acknowledged that climate change lies behind all the grievances present in the Middle East and its effects are defined as "threat multipliers that will aggravate stressors abroad such as poverty, environmental degradation, political instability, and social tensions; conditions that can enable terrorist activity and other forms of violence" (NATO Strategic Direction South, 2019, p. 8).

[5] Boko Haram is an Islamic radical organization operating in Nigeria. Boko Haram stands out, according to Olalekan A. Babatunde, because of its modes of recruitment but also because of its ability to involve all categories of the society. "Boko Haram, which literally means "western education is forbidden" in the Hausa language, is homegrown, contrary to what is chunked out to the media. The sect was already widely known before it pledged its allegiance to ISIL in 2015" (Babatunde, 2018).

[6] Al Qaeda is the first terrorist group of the 21st century. It is a broad-based militant Islamist organization founded by Osama bin Laden in the late 1980s. Al Qaeda in Arabic means "the Base" (Gunaratna, 2002).

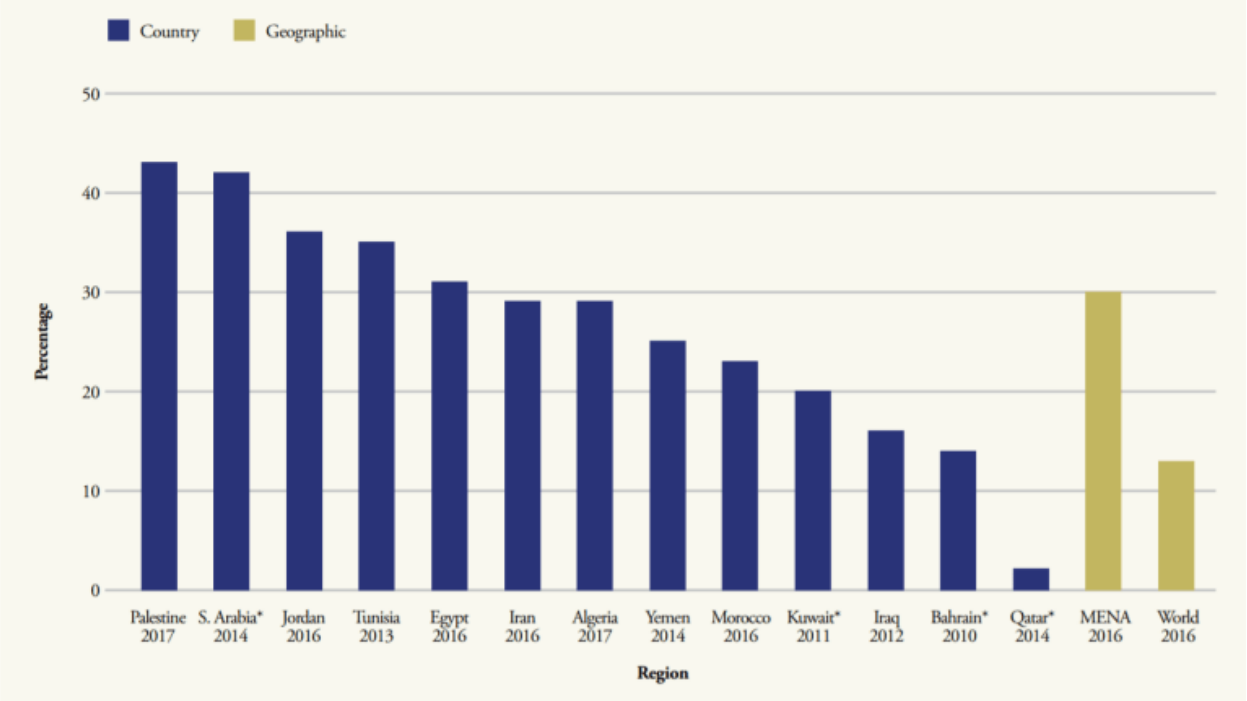

Figure 1. Youth Unemployment Rates by Country (Kabbani, 2019)

Environmental stresses not only increase terrorist recruitment, but also contribute to weak states or state failure (as in the case of Samarra, Iraq), which is itself a driver of civil conflict and extremism. It seems reasonable to think that all the Middle Eastern regional instabilities are linked to each other. More specifically, climate change affects water resources, which has a negative impact on agriculture, as more than 80% of the water in the Middle East is dedicated to it (NATO Strategic Direction South, 2019, p. 10).

Since the region supports a population of 296 million people and, of these, about 84 million depend on agriculture, about a third of the Middle Eastern population faces the consequences of climate change first hand (Dixon, Gibbon & Gulliver, 2001). For instance, in northeastern Syria, workers lost almost 85% of their livestock as a result of the recurring droughts between 2005 and 2010 (NATO Strategic Direction South, 2019, p. 8). Because these people rely on agriculture as a primary form of employment, climate change fuels unemployment in the region by causing water scarcity.

As of 2017, the youth unemployment rates in the Middle East have been the highest in the world for over 25 years, reaching 30 percent rate, as illustrated in figure 1 (Kabbani, 2019). Specifically, Palestine, Saudi Arabia, Jordan and Tunisia are the first countries for percentage of youth unemployment (figure 1). The inability of the governments to respond to this situation worsen the environmental and working crises. The U.N. Arab Human Development Report (AHDR) determined that the Middle East now encompasses "the largest number of countries that have become failed states" (United Nations Development Programme, 2016, p. 175).

Because states did not respond to the need of their citizens, they constituted a fertile soil for the advent of extremist and terror groups, which became one of the most suitable solutions for helpless people. Thus, all the grievances connected to climate change existing in the Middle Eastern area, fueled regional conflict and extremism, in some way or another. As a consequence, the Arab world became the region that has experienced the most rapid increase in war, extremism and violent conflict over the past decade (Dixon, Gibbon & Gulliver, 2001).

The Islamic State recruited 60-70% of its fighters from places that have suffered significantly from climate change (DuBois King, 2015, p. 154). The correlation between climate change and ISIS recruitment is visible also in the fact that most of the organisation's foreign recruits come from Saudi Arabia, Tunisia and Libya, the regions with the highest rates of droughts and water shortages in the world, but also the regions with the highest unemployment rates (Abdel Jelil, 2018; Bodetti, 2019; Kabbani, 2019; Soria, 2013). Even though a correlation between the climatological factor and the recruitment factor does not necessarily mean that there is a direct causation between the two, their relationship should still not be undermined. It cannot be said that all extremism derives from the scarcity of vital resources caused by climate change, but certainly, a large part of it does.

Climate change is part of a vicious circle. Political violence prevents mitigation strategies, the absence of mitigation strategies worsen the effects of climate change in immediate terms, the worsening of climate conditions brings unemployment, and unemployment increases political discontent and mistrust in the government which then leads to extremism, civil war and violence. Because climate change multiplies other grievances, and it is also multiplied by them, it can be considered one of the primary force that intensifies grievances.

As we have seen, climate change alone cannot explain extremism, but is the result of many grievances together. Even if climate change were to be reversed, ISIS would not cease to recruit. The same thing can be said for unemployment, civil war and state failure. The removal of any of these issues alone would not be sufficient to stop extremism. Since climate change is inextricable from localized issues, it is difficult to quantify the size of the impact of climate change taken in isolation. Even if it is impossible to quantify how much climate change exasperates extremism, it is not impossible to attribute a lot of responsibility to it. It counts but it cannot be counted.

The Effects of Climate Change in the Middle East

Understanding the extent to which water related issues are stressors in the Middle East is significant to explore how much

they damage agriculture and, consequently, help terrorist organizations — like ISIS — to recruit in the future. On the environmental front, the Middle East is one of the regions suffering the most from the effects on climate change, for example, from increasing droughts and water shortages (Broom, 2019).

The climatological problems effecting the area are many. According to Hille (2016), since 1998 the whole region has been experiencing the worst dry period of the last 900 years. In particular, as the World Economic Forum supports, the Dead Sea has shrunk by almost a third in the last two decades and the Jordan River has been increasingly evaporating because of lower rainfall. Moreover, according to Khan (2013), the Middle East has been very vulnerable because climate change also causes flooding, infrastructure damage, agricultural damage, landslides, telecommunication loss and damage to housing.

According to many scholars, these problems have contributed to the success of ISIS recruiting activities in the Middle East in the past by throwing millions of people into extreme poverty and exacerbating unemployment rates (Adelphi, 2018; Bodetti, 2019; Doherty, 2017; Gerretsen, 2019; O'Malley, 2015; Perlmutter, 2016; Ro, 2019; Tousignant, 2017; UNODC). Therefore, the intensification of climate linked problems, in an area that is already torn by civil war and pervasive instability, will only help terrorist recruitment even more.

The environmental problems that the region is currently facing are only expected to increase in the incoming months and years (OECD, 2014, p. 20; Wong, 2015, p. 70). Indeed, the World Bank predicts that the Middle East will suffer from longer and hotter heat waves, making some regions unlivable and significantly reducing the amount of arable land. The stress caused by the scarcity of resources and the decreased livelihood could potentially increase migration and conflicts. Scientists predict that if serious measures are not implemented to reduce the current environmental crisis, some cities in the region may become uninhabitable before 2100 (Broom, 2019).

ISIS's power, and the power of all the terrorist groups which will take advantage of climate related grievances, will grow together with the environmental crisis. Joining ISIS, or similar organizations, will eventually become one of the few alternatives which people will have to survive poverty, because it will provide them employment opportunities and sustainment, performing state-like functions.

A REPRESENTATIVE CASE STUDY

Climate Change Fuelling ISIS Recruitment: the Episode of Samarra (2009)

One representative episode, documented by the National Geographic in 2017, illustrates how ISIS exploit consequences of climate change in Samarra (Iraq). In 2009, the inhabitants of the Sunni[7] Arab town west of the Tigris in Saladin Governorate were experiencing extreme poverty. This was because their territory was devastated from waves of extreme heat or cold due to climate change. One day, a group of bearded men entered the city to speak to the most desperate-looking people to persuade them to join ISIS. Recruiters relied on people's feelings of disenfranchisement and marginalization by emphasizing the idea of "Islamic State", depicted by jihadis as the idyllic and welcoming place in which they would be saved from poverty and unemployment (Hegghammer, 2017; Hulsmann, 2015; Perlmutter, 2016, p. 6). Saleh Mohammed Al-Jabouri (a local tribal sheikh) testifies that they said, "join us, and you'll never have to worry about feeding your family" (Al-Saadi, 2017). Jihadists would reappear in the city when it was affected by environmental disaster, such as floods or droughts. Often, ISIS recruiters would offer gifts, food baskets and even cash to impoverished citizens. Month after month, jihadis saw their investments paying off as workers from the poor regions of Iraq gradually left to join ISIS.

According to the online newspaper Independent, Iraq's water woes have been fuelling the recruitment in the north of the country. The most vulnerable were farmers around the age of 18 and 19. "They [Jihadis] promised them they would become emirs [princes] and governors. They lured them with salaries, they told them they would conquer all the lands to Burma" tells Nawaf, a farmer living under the caliphate (Trew, 2019). The farmers who signed up had power and status. Those who refused, like Nawaf, were forced to give the jihadis 10% of their crops.

In total, 5,000 farmers from the poorest areas of Iraq joined ISIS, according to Naseer Tareq, a human rights activist from Tikrit (city in Iraq). He says, "most of the farmers are not educated, they do not learn about religion, they know little about national politics. At the time, they didn't know the difference between government forces or any other armed group, they just needed the money" (Trew, 2019). Indeed, poverty caused by climate change drove desperate and uneducated farmers into support of terrorist groups as they realized that natural disasters were only increasing with time. By 2014, dozens of former agricultural workers ended up joining ISIS to survive. When ISIS came to recruit in the small villages of Iraq, joining the jihadis was the only option available to many workers to feed their families. Samir Saed, an Iraqi employer, states, "they were frustrated and just saw it as another type of work" (McCarthy, 2017).

Since Middle Eastern governments were unable to employ citizens, jihadists found failed states that were the most affected by climate change as the most suitable grounds to recruit. This terrorist organization was able to perform state functions; therefore, its influence on the people was more effective than that of other groups. ISIS's ability to recruit increased once it was able to perform state functions. The Iraqi government was supposed to take care of its citizens but it failed to do so. Therefore, ISIS took advantage of the desperation of the people in need to broaden its membership and gain legitimacy. Overall, many of the people who joined ISIS did so to feed themselves and not because they were committed to the ideological and political goals.

What happened in Iraq is just one case study among many, as similar recruitment campaigns were undertaken in other Middle Eastern countries. To document such operations, National Geographic conducted more than 100 interviews in regions invaded by ISIS. During these interviews, climate change consistently came up as a condition that made their intrusion possible (McCarthy, 2017). Citizens were persuaded to join ISIS because it was their only way to escape poverty caused by water problems, as governments failed to tackle these problems.

[7] Shia and Sunni Islam are the two major denominations of Islam. They chose sides following the death of the Islamic prophet Muhammad in AD 632. ISIS fighters themselves are Sunnis. "The present demographic breakdown between the two denominations is difficult to assess and varies by source, but a good approximation is that 85% of the world's Muslims are Sunni and 15% are Shia Muslims" (Marshall Cavendish Reference, 2010, p. 130).

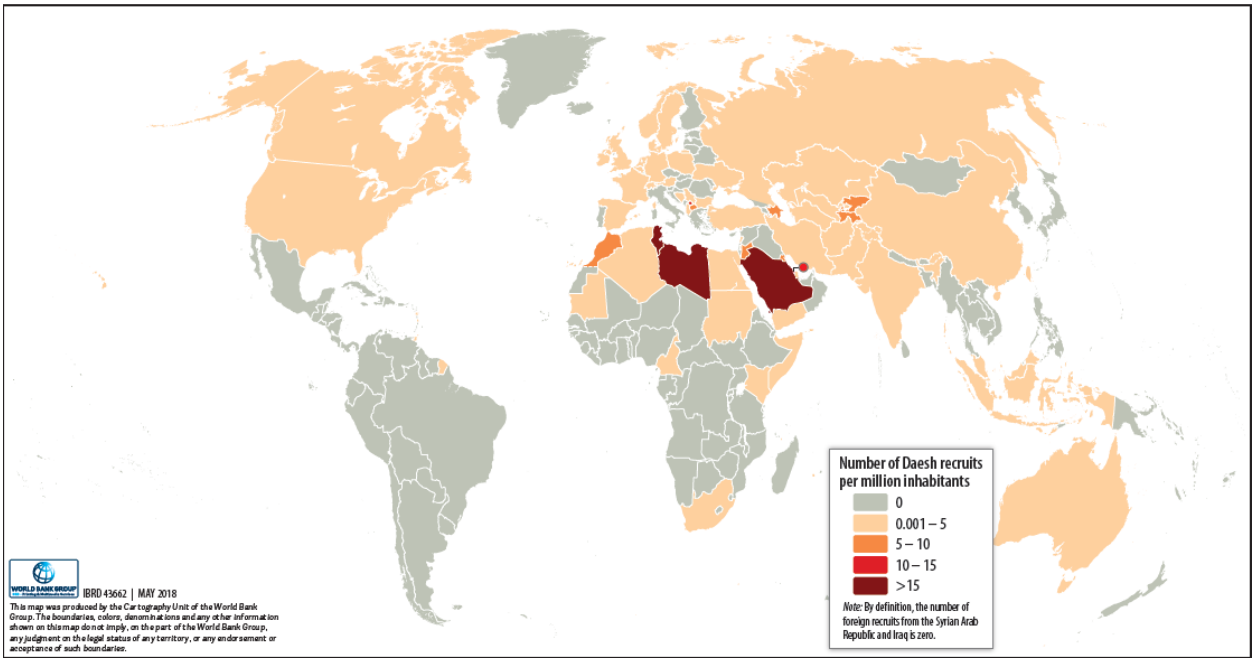

Figure 2. Countries of Origin of Daesh Foreign Recruits (Abdel Jelil, 2018)

Because climatological stresses, in areas already torn by instabilities, are heavily contributing to the success of terrorist organizations, it is essential to investigate their relationship with recruitment in the future.

COMPARING WATER ISSUES AND ISIS RECRUITMENT LOCATIONS

The Hotspots of ISIS Recruitment

ISIS is an acronym for Islamic State of Iraq and Syria. As the name ISIS implies, most recruits come from Iraq and Syria, as did the recruits from Samarra. However, ISIS recruitment is not limited to these two territories. Figure 2 shows the foreign workforce of ISIS during a period stretching from early 2013 to late 2014 (Abdel Jelil, 2018). The map, produced by the World Bank Group, represents a total of 61 nationalities, which demonstrates that ISIS' influence is international and extensive. Countries with a small Sunni Muslim minority account for the 12% of ISIS's foreign recruit. Given that ISIS identifies as Sunni, they would find an unfruitful recruitment ground in areas inhabited by Shia. Therefore, the majority of ISIS foreign recruits are in countries which are closer to Syria and Iraq, which contain larger Sunni Muslim population. By far, the three leading countries in terms of members recruited, outside of Iraq and Syria, are Saudi Arabia, Tunisia and Libya.

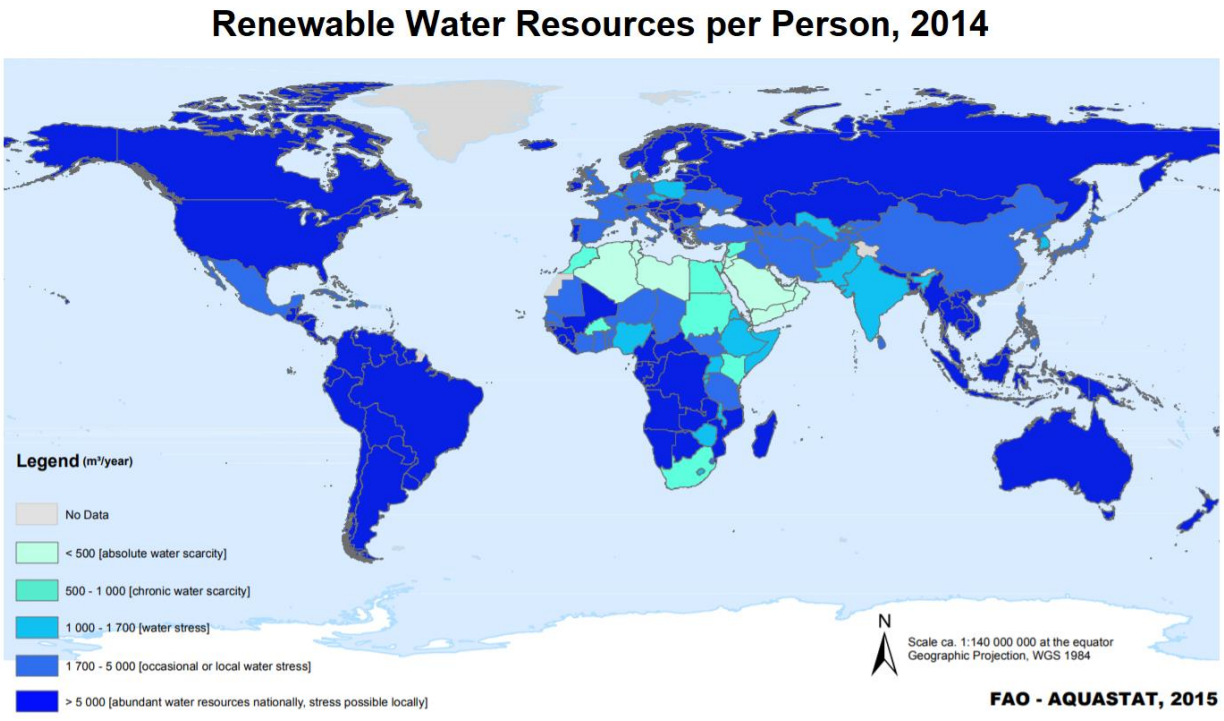

Figure 3. Global Renewable Water Resources per Person, 2014

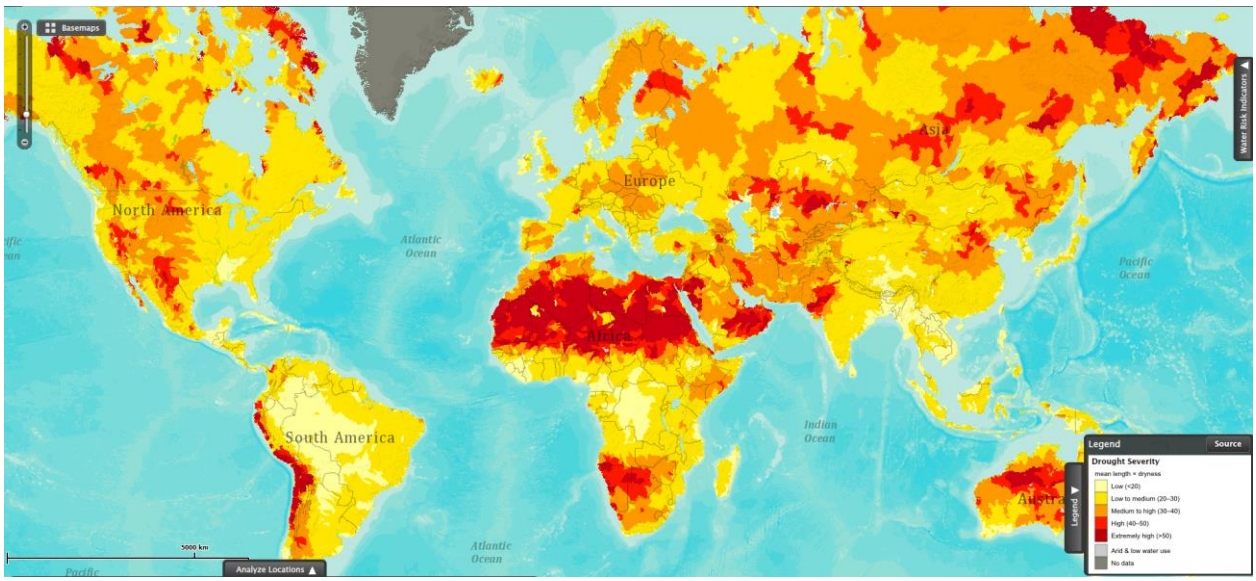

Figure 4. Drought Severity by Country (Soria, 2013)

The Countries Most Impacted by Climate Change

The consequences of climate change are different in each country in the Middle East. According to figure 3, Africa and the Middle East are the regions where climate change most depletes supplies of drinkable water. According to Index Mundi Blog, Jemen, Saudi Arabia, Jordan, UAE, Oman, Libya, Tunisia and Algeria are the only countries in the world with "absolute water scarcity" (< 500 m^3/year). Interestingly, Saudi Arabia, Tunisia and Libya are also the countries with the majority of foreign ISIS recruits (figure 2).

Comparing figures 2 and 3 help to emphasize the fact that ISIS recruitment activities take place mostly in countries that are affected by absolute water scarcity. Water scarcity limits the cropland and impoverishes citizens of their sustainment. As a consequence, the Sunni areas affected by climate change are also the poorest and more desperate areas where citizens are more receptive to ISIS's appeals. This statement builds a solid ground for the argument that, in the future, climate change will impact these areas even more and it will open up more possibilities for ISIS to recruit in other regions — such as Saudi Arabia, Tunisia and Libya's neighbouring countries.

Saudi Arabia, Tunisia and Libya's neighboring countries are not only heavily affected by climate change because of water scarcity, but also because of droughts. Figure 4 depicts drought severity in the world, measured on the length and the heaviness of a drought occurrence. The northern region of the African continent stands out as the largest area being affected by severe droughts. The countries heavily impacted by water shortages are mostly the same as the ones impacted by droughts (Jemen, Saudi Arabia, Jordan, UAE, Oman, Libya, Tunisia and Algeria). Moreover, the regions where droughts and water shortages are less severe — like Latin American countries — are also the region with the fewer number of ISIS recruits in the world.

The fact that the countries that are affected by droughts and water scarcity are the same countries where ISIS recruits — and vice versa — confirms that the terrorist organization operates in Sunni areas affected by climate change to recruit members. Having exploited droughts and water shortages in the past, it is reasonable to expect that ISIS will continue to take advantage of people's desperation in the future decade, expanding its network in all of the countries which are currently witnessing the effects of climate change fist-hand.

WHAT THE FUTURE HOLDS

Respondents to the Global Risks Perception Survey 2018-2019 ranked climate-change-related issues as the leading risk to economies over the next ten years (Schmitt, 2019). Flooding, infrastructure damage, agricultural damage, landslides, telecommunication loss and damage to housing are some of the many consequences global warming may cause in the Middle East. In particular, damage to agricultural production caused by water shortages and droughts may exacerbate pre-existing issues such as youth unemployment, civil conflict and state failure.

In the coming decade, the environmental crisis may become so severe, that parts of the Middle East may become uninhabitable (Broom,2019). "It's only about five years until 2025, and most experts agree that over the course of these five years, the current, mostly negative trends and processes with a high impact on the region are unlikely to be reversed or even significantly limited" (Kortunov, 2019). The NATO Strategic Direction South Center contends that the region is already naturally prone to extreme temperatures and water shortages, and that warming of about 0.2°C per decade has already been observed in the MENA region from 1961 to 1990, and it has been even greater since then (NATO Strategic Direction South, 2019, p. 8).

In 2025, water pollution will likely worsen and water precipitation will likely decrease. Therefore, climate change will aggravate water scarcity in almost all countries of the region, further weakening agricultural production. Climate change is expected to impact livestock production in different ways by reducing the quantity and quality of available feeds, changing the length of the grazing season, and causing additional heat stress. There will likely be reduced drinking water for humans and livestocks and, possibly, new livestock diseases and disease vectors (NATO Strategic Direction South, 2019, p. 8). The same study claims that crop yields are expected to decline by 30% with 1.5–2°C warming, and up to 60% with 3–4°C warming. Therefore, the region is already expected to depend on imports of as much as 50% for its food requirements by 2050 (NATO Strategic Direction South, 2019, pp. 8-9).

While the environmental situation is expected to worsen over the next decade, the power of ISIS is expected to increase. Fawaz Gerges, in his book about the history of ISIS, states that "for the moment, ISIS is ascendant" (Gerges, 2017, p. 260).

Proof of this claim is the fact that the organisation is the result of the breakdown of state institutions, civil conflict and widespread poverty — all issues that are far from being resolved. Orla Guerin, in an article for BBC news, also suggests that there are growing indications that the Islamic State (IS) group is re-organising in Iraq as they have improved their tactics, raised more money, and stockpiled weapons, supplies and vehicles at their disposal. "They are like al-Qaeda on steroids", she says (Guerin, 2019).

Overall, the future of ISIS in the Middle East is impossible to predict with confidence. However, there is evidence to think that ISIS will likely rise or — at least — survive in the next decade. Even if ISIS does not flourish in the next decade, the environmental crisis is unlikely to be healed. Therefore, even if ISIS will not be able to exploit climate change for its recruitment purposes, other terrorist organisations may do so.

Like ISIS, Boko Haram is exploiting climate change to recruit fighters (Babatunde, 2018). Similarly to the Middle East, Africa is highly affected by water scarcity and food shortages, as well as weak governments and civil conflict. As ISIS took advantage of such grievances in the Middle East, Boko Haram took advantage of them to strengthen its organization in Africa. "In north-eastern Nigeria, where Boko Haram is strongest, 71.5% of the population live in poverty and more than 50% are malnourished (…) This kind of economic deprivation provides an ideal breeding ground for recruitment by Boko Haram" (Doherty, 2017). Therefore, even if ISIS does not survive in the next years, Boko Haram may still follow ISIS's path and extend its power by exploiting regional grievances caused by climate change.

Al-Qaeda also made environmental degradation part of its agenda in the past. The terrorist organization led campaigns against deforestation, water scarcity, crop failures and other environmental issues affecting the Middle East as a way to enlarge its membership. In other words, Osama bin Laden exploited global warming to carry out propaganda. During such operations, Al Qaeda also called out the United States for "declining to join the Kyoto Protocol[8] and polluting the natural environment with industrial waste and gases more than any other nation in history" (Bodetti, 2019). Therefore, Osama bin Laden successfully empowered its organization by pointing the finger at other countries' unwillingness to fight for environmental justice.

Having established that known terrorist organizations exploited environmental grievances in the past, it is possible that new — perhaps unknown — extremisms may rise as regional desperation increases. Research supports that each year, 61 new terrorist organizations emerge (Yang, 2019). The research described in this paper suggests that this number will increase with increased environmental degradation. Climate change will work as a threat multiplier. Thus, it will exacerbate pre-existing issues — such as government failures, unemployment and war — but it will also create new ones.

CONCLUSION

Overall, it has been shown that the Middle East is highly affected by climate change and it will continue to be even more severely affected in the future — especially by droughts and water shortages. Within the Middle East, ISIS has been more active in countries with higher rates of droughts and water shortages. ISIS took advantage of the environmental crises in foreign countries, but in Iraq and Syria as well, as demonstrated in the episode of Samarra (Iraq) in 2009, and it has exploited climate change related issues in the past to recruit its fighters.

Because ISIS is following a pattern based on exploiting people's vulnerabilities, it is reasonable to expect that it will continue to take advantage of the environmental crisis in the next decade; especially in countries where there is already instability (failed states, unemployment, civil war). The inability of local governments to respond to this instability made people more receptive to ISIS's recruitment appeals. Many distresses, but particularly water shortages, support ISIS recruitment operations today and will continue to do so in the future, given that the environmental degradation is predicted to increase.

Furthermore, even if ISIS does not continue to take advantage of these grievances, regional desperation may still be exploited by other terrorist organizations. ISIS, Boko Haram and Al Qaeda all exploited global warming to strengthen their power. It is imperative to acknowledge that the fight to reduce climate change is a part of the global fight to eliminate terrorism. Making environmental preservation a priority would not only benefit citizens, but would also help to reduce the attractiveness of ISIS and other terrorist groups that exploit climatological grievances.

REFERENCES

Abdel Jelil, M., et al., 2018. What Drives the Radicalization of Foreign Terrorist Recruits?.[online] Available at: <blogs.worldbank.org/developmenttalk/what-drives-radicalization-foreign-terrorist-recruits>.

Adelphi, 2018. Terrorist Recruiting, Water Conflicts and Climate Change in Iraq – What Are the Links?. [online] Available at: <www.climate-diplomacy.org/videos/terrorist-recruiting-water-conflicts-and-climate-change-iraq-–what-are-links>.

Al-Saadi, A. and Drake, C., 2017. Climate Change and Water Woes Drove ISIS Recruiting in Iraq. [online] Available at: <www.nationalgeographic.com/news/2017/11 climate change-drought-drove-isis-terrorist-recruiting-iraq/>.

Babatunde, O.A., 2018. The Recruitment Mode of the Boko Haram Terrorist Group in Nigeria. Peace Review, [e-journal] 30(3), pp. 382–389.

Badar, M.E., 2016. The Road to Genocide: The Propaganda Machine of the Self-Declared Islamic State (Is). International Criminal Law Review, [e-journal] 16(3), pp. 361–411.

[8] The Kyoto Protocol is an international treaty adopted in Kyoto, Japan, on 11 December 1997, which entered into force on 16 February 2005. It is an extension of the UNFCC and commits state parties to reduce greenhouse gas emissions, based on the scientific consensus that (part one) global warming is occurring and (part two) it is extremely likely that human-made CO2 emissions have predominantly caused it. There are currently 192 parties to the Protocol (Victor, 2001).

Bodetti, A., 2019. Climate Change Expands the Terrorist Threat. [online] Available at: <https://yaleglobal.yale.edu/content/climate-change-expands-terrorist-threat>.

Broom, D. 2019. How the Middle East Is Suffering on the Front Lines of Climate Change. [online] Available at: <www.weforum.org/agenda/2019/04/middle-east-front-lines-climate-change-mena/>.

De Châtel, F., 2014. The Role of Drought and Climate Change in the Syrian Uprising: Untangling the Triggers of the Revolution. Middle Eastern Studies. [e-journal] Available at: <blogs.commons.georgetown.edu/rochelledavis/files/francesca-de-chatel-drought-in-syria.pdf>.

Doherty, B., 2017. Climate Change Will Fuel Terrorism Recruitment, Report for German Foreign Office Says. [online] Available at: <www.theguardian.com/environment/2017/apr/20/climate-change-will-fuel-terrorism-recruitment-adelphi-report-says>.

DuBois King, M., 2015. The Weaponization of Water in Syria and Iraq. [e-journal] The Washington Quarterly. Available at: <www.researchgate.net/publication/290473455_The_Weaponization_of_Water_in_Syria_and_Iraq>.

Dixon, J.A., Gibbon, D.P. and Gulliver, A., 2001. Farming systems and poverty: improving farmers' livelihoods in a changing world. Food & Agriculture Org..

Gerges, F.A., 2017. Isis: A History. Princeton University Press. [e-journal] Available at: >https://www-jstor-org.jcu.idm.oclc.org/stable/j.ctvc77bfb.14?refreqid=excelsior%3Aff2b9f696d2a362fd232ef1804583806&seq=1#metadata_info_tab_contents>.

Gerretsen, I., 2019. How Climate Change Is Fueling Extremism. [online] Available at: <edition.cnn.com/2019/03/06/world/climate-change-terrorism-extremism-africa-middle-east-intl/index.html>.

Gleick, P.H., 2019. Water As a Weapon and Casualty of Conflict: Freshwater and International Humanitarian Law. Water Resources Management: An International Journal - Published for the European Water Resources Association (Ewra), [e-journal] 33(5), pp. 1737–1751.

Gleick, P.H.. 2014. Water, Drought, Climate Change, and Conflict in Syria. Water, Drought, Climate Change, and Conflict in Syria: Weather, Climate, and Society, [e-journal] 6(3).

Guerin, O., 2019. Isis in Iraq: Militants 'Getting Stronger Again'. [online] Available at: <www.bbc.com/news/world-middle-east-50850325>.

Gunaratna, R., 2002. Inside Al Qaeda: Global Network of Terror. Columbia University Press, [e-journal] pp. 1–15.

Hegghammer, T., 2017. Jihadi Culture: The Art and Social Practices of Militant Islamists. Cambridge University Press. [e-journal].

Hille, K., 2016. Drought in Eastern Mediterranean Worst in 900 Years. [online] Available at: <www.nasa.gov/feature/goddard/2016/nasa-finds-drought-in-eastern-mediterranean-worst-of-past-900-years>.

Hulsmann, A. et al., 2015. Climate Change, Water Supply and Sanitation: Risk Assessment, Management, Mitigation and Reduction. IWA Publishing. [e-journal].

Jones, et al., 2017. Rolling Back the Islamic State. RAND Corporation. [e-journal].

Kabbani, N., 2019. Youth Employment in the Middle East and North Africa: Revisiting and Reframing the Challenge. [online] Available at: <research/youth-employment-in-the-middle-east-and-north-africa-revisiting-and-reframing-the-challenge/>.

Khan, R., 2013. Flood as a Disaster in the Middle East Region. International Journal of Scientific Engineering and Research (IJSER). [e-journal].

Kortunov, A., 2019. The Future of the Middle East: Horizons of Challenges and Opportunities. [online] Available at: <russiancouncil.ru/en/analytics-and-comments/analytics/the-future- of-the-middle-east-horizons-of-challenges-and-opportunities/>.

Lister, C.R., 2015. The Islamic State: a brief introduction. Brookings Institution Press.

Maclay, K., 2015. Warmer Climate Strongly Affects Human Conflict and Violence Worldwide, Says Study. [online] Available at: <news.berkeley.edu/2013/08/01/climate-strongly-affects-human-conflict-and-violence-worldwide-says-study/>.

Marshall Cavendish Reference, 2010. Islamic Beliefs, Practices, and Cultures. Marshall Cavendish.

McCarthy, J., 2017. ISIS Preyed on Victims of Climate Change to Recruit in Iraq, Report Says. [online] Available at: <www.globalcitizen.org/en/content/isis-climate-change-iraq/>.

Mitts, T., 2019. From isolation to radicalization: anti-Muslim hostility and support for ISIS in the West. American Political Science Review, [e-journal] 113(1), pp.173-194.

National Geographic Society, 2019. Climate Change. [online] Available at: <www.nationalgeographic.org/encyclopedia/climate-change/>.

NATO Strategic Direction South, 2019. WATER SCARCITY IN THE MIDDLE EAST. [pdf] Available at: <https://thesouthernhub.org/resources/site1/General/NSD-S%20Hub%20Publications/Water_scarcity_in_the_Middle_East.pdf>.

Nett, K. and Rüttinger, L., 2016. Insurgency, Terrorism and Organised Crime in a Warming Climate. [online] Available at: <www.adelphi.de/en/publication/insurgency-terrorism-and-organised-crime-warming-climate>.

OECD (Organisation, for Economic Co-Operation and Development), 2014. Climate Change, Water and Agriculture : Towards Resilient Systems. IWA Publishing. [e-journal].

Ogun, M.N. ed., 2015. Terrorist Use of Cyberspace and Cyber Terrorism: New Challenges and Responses (Vol. 42). IOS press.

O'Malley, M., 2015. Climate Change Helped Spark Destabilization of Syria, Rise of Islamic State. [online] Available at: <www.democracynow.org/2015/9/10/martin_omalley_climate_change_helped_spark>.

Perlmutter, D.D., and Abadi, H., 2016. Countering Daesh Propaganda: Action-Oriented Research for Practical Policy Outcomes. [online] Available at: <www.cartercenter.org/resources/pdfs/peace/conflict_resolution/countering-isis/counteringdaeshpropaganda-feb2016.pdf#page=11>.

Ro, C., 2019. Climate Change Is Benefiting Terrorists In Somalia. [online] Availble at: <www.forbes.com/sites/christinero/2019/10/27/climate-change-is-benefiting-terrorists-in-somalia/>.

Schmitt, G. and Zopf, Y., 2019. Unemployment, Governance Challenges and Energy Price Shocks Seen as Major Risks in the Middle East and North Africa, Climate Change Possible Blind Spot. [online] Available at: <www.weforum.org/press/2019/04/unemployment-governance-challenges-and-energy-price-shocks-seen-as-major-risks-in-the-middle-east-and-north-africa-climate-change-possible-blind-spot/>.

Somers, S., 2019. How Terrorists Leverage Climate Change. [online] Available at: <www.newsecuritybeat.org/2019/09/terrorists-leverage-climate-change/>.

Soria, C., 2013. Drought Severity by Country (1901 – 2008). [online] Available at: <www.indexmundi.com/blog/index.php/tag/length-of-droughts/>.

Strozier, C.B., and Kelly A.B., 2014. How Climate Change Helped ISIS. [online] Available at: <www.huffpost.com/entry/how-climate-change-helped_b_5903170?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAFQcWOFlvvpx34IpfqA5Qc4_1fuJvuYkiLTRGr82_jO1j1V_tCRXEqYWIJC9wJ8f9Tfi2Gohg5cYvu4Rm-G0kpokubgy3gX_iGidh9L4GmlElDt8VFjAeXTbNyiU8J5xBOY5Q0mwaFz4mkpvC3cwi33zV5gHYrU1ha0FQyv9hLqu>

The Syrian Observatory for Human Rights, 2019. Although They Have Been Besieged by Russia, Iran, and the Regime for Two Years, Thousands of ISIS Members Are Still within an Area of 4000 km² without Any Intention to Launch a Military Operation against Them. [online] Available at: <https://www.syriahr.com/en/117051/>.

Tousignant, L., 2017. Climate Change Could Fuel the Global Rise of Terrorism. [online] Available at: <nypost.com/2017/04/20/climate-change-could-fuel-the-global-rise-of-terrorism/>.

Trew, B., 2019. Drought Drove People into the Arms of Isis and It Could Happen Again. [online] Available at: <www.independent.co.uk/news/world/middle-east/drought-isis-recruit-iraq-water-shortage-pollution-war-terrorism-a8583311.html>.

United Nations Development Programme, 2016. Arab Human Development Report 2016: Youth and the Prospects for Human Development in a Changing Reality. [online] Available at: <http://hdr.undp.org/en/content/arab-human-development-report-2016-youth-and-prospects-human-development-changing-reality>.

UNODC. Climate Change Could Mean More Terrorism in the Future. [online] Available at: <www.unodc.org/nigeria/en/climate-change-could-mean-more-terrorism-in-the-future.html>.

Victor, D.G., 2001. The Collapse of the Kyoto Protocol and the Struggle to Slow Global Warming. Princeton University Press.

Whittaker, D.J., 2004. Terrorists and terrorism: In the contemporary world. Routledge.

Wong, K.V., 2015. Climate Change. Momentum Press.

World Bank. Climate Change in the Middle East & North Africa. [online] Available at: <www.worldbank.org/en/programs/mena-climate-change>.

Yang, Y. et al., 2019. Dozens of New Terrorist Organizations Emerge Each Year. Which Ones Will Become Most Dangerous? [online] Available at: <insight.kellogg.northwestern.edu/article/measuring-terrorist-groups-danger.