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Climate Change and the Rise of Terrorism in Northeastern Syria

by Samantha Wilson

(Biology 1110)

When analyzing the rise of terrorism in Syria, foreign governments, political commentators, and journalists often overlook the devastating effects climate change has had in Syria's already fragile biomes. The biomes of Syria mostly consist of warm and cold desert, except in the agriculturally vital northeastern region, where the waters from the Euphrates and Tigris River support a warm, semi-arid shrubland necessary for pasteurization and agriculture. In 2007, a five-year drought struck the country, severely devastating the lives of herders and farmers, and caused mass migration from the rural areas to the urban cities in hopes of finding employment and food. Since Bashar al-Assad's rise to power in 2000, those living in Syria have suffered from a shift in its economy from the socialist policies of the Ba'ath Party to a more market-based economy with unequal monetary distribution, a lack of social safety networks, and an increase in prices for oil and agricultural fertilizers. The Assad government did little to acknowledge the plight of the farmers remaining in the region, leaving a power vacuum for ISIS to fill in the northeastern region of Syria, seizing control of scarce resources such as water and oil and using them as a weapon to control the populations of rural areas and populous cities such as Raqqa.

Increasing Temperatures and Drought Leads to Diminishing Resources and Migration

There are four distinct biomes in Syria; the eastern Mediterranean, the cold and warm deserts that blanket a majority of the country, and the vital warm semi-arid northeastern region that borders with Turkey, which produces much of the country's agriculture (Nett & Ruttinger, 2016). This area is dependent on the Euphrates river basin, as it provides "65 percent of surface water supply in Syria and accounts for 27 percent of total land resources" (Kibaroglu & Schuemann, 2013). The countries surrounding the Euphrates River, Turkey, Iran, and Syria, have been competing for its resources for decades, creating irrigation programs in each country that began to overextend their reach (Kibaroglu & Schuemann, 2013). In Syria, this initiative was headed by President Hafez al-Assad and his military regime in order to make Syria agriculturally self-sufficient (Wendle, 2016, 52). However, as the years went on, and the temperatures began to increase, Syrian farmers grew to rely more heavily on well-digging for ground water. Kemal Ali, a Syrian who ran a well-digging company for 30 years explains, "Before the drought, I would have to dig 60 or 70 meters to find water...then I had to dig 100 to 200 meters...then when the drought hit very strongly, I had to dig 500 meters. The water kept dropping and dropping" (Wendle, 2016). As the groundwater in Syria was dramatically declining, in 2006, the northeastern was hit with a terrible five-year drought, spelling disaster for a region that was already over-farmed, over-worked, and lacked sustainable resources. The 2007-8 crop season was the most damaging, as levels of rainfall declined by 66 percent. Crop yields in state-irrigated areas declined by 32 percent, while areas dependent on rainfall for watering fell a dramatic 79 percent (Lister, 2015). Herders that depend on the regions dry grasslands for grazing, with 10,700 herders in Hasakah, 11,500 herders in Raqa, and 12,245 herders in Hama losing their source of income (Nett & Ruttinger, 2016).

Without the ability to develop and sustain farmland or herd livestock, Syria experienced a mass rural-to-urban migration, with the most dramatic shifts seen in the north-eastern regions of al-Hasakan, al-Raqa, and Deir ez Zour with 60 to 70 percent of region abandoned in favor of southern

cities such as Damascus (Lister, 2015). As thousands flocked south, the Assad regimes did little and less to alleviate the economic conditions for both the farmers that remained in the northeastern regions, and those who were displaced searching for employment in the large cities. The urban areas of Syria were marked with illegal suburban settlements, and were rife with “overcrowding, poor infrastructure, unemployment and crime”, and were “neglected by the Assad government and became the heart of the developing unrest” (Wendle, 2016, 54). These climate refugees would either join the Free Syrian Army and rebel factions, continue on a harrowing journey to flee the nation, or become caught in the crossfires of civil war. Those who remained in the drought-stricken regions of the northeast would join forces with the Syrian Kurds, organize militias, or succumb to the newest power in the region, ISIS, which claimed much of the northeastern territory abandoned by the Syrian government and population alike.

Political Instability and Civil War Allows ISIS to Expand into Syria, Capturing Remaining Resources

As the families who remained in the northeastern regions in Syria struggled to survive during the drought, political unrest in major cities such as Damascus and Deraa in the south began to surge. Referred to as the Arab Spring, in the spring of 2011, pro-democracy protestors took to the streets to demonstrate their disapproval with the Assad regime’s lack of economic action to help those in the drought regions and those suffering in the urban areas looking for employment. Prior to the drought, the economic policies of the Assad government began to shift from the social safety networks of the prior socialist Ba'ath governments to a more capitalistic, market economy, with returns in the economy favoring those at the top (Lister, 2015). The Assad government cut subsidies to farmers, increasing the price of oil and fertilizer in 2008 and 2009, increasing the loss of livelihoods. (Lister, 2015). These policies coupled with a corrupt, one party state, and extreme drought led to civil unrest, and eventually civil war in the Southern regions of Syria, and the populous city of Aleppo. By 2014, conditions had broken down enough in Syria for ISIS to make their move into northeastern Syria. Due to the lack of population, active resistance efforts, and state infrastructure and regulation of Syria’s northeastern water sources, ISIS took this opportunity to seize control of the water, and establish social services, providing some relief to disaffected local populations (Nett & Ruttinger, 2016). As geographer and author Harm de Blij states, “terrorist cells find refuge in remote, rugged, rural environs where they can blend in with the local population while operating their cells and preparing their attacks, especially when those environs adjoin suitable targets” (2012, 207).

One of these targets was the city of Raqqa, which fell to ISIS in November 2013 after months of rebel and state military fighting. Establishing Raqqa as the de facto capital of the caliphate, ISIS began to carve out supply-line routes along the extremely important Euphrates and Tigris Rivers, claiming water resources, oil fields, energy resources, and remaining agriculture in their wake. A 2016 report entitled “Insurgency, Terrorism, and Organised Crime in a Warming Climate” explains, “With resources gained from the seizure of oil fields, extortion and foreign support, the terrorist group financed infrastructure and state-like institutions such as the ‘Islamic Administration for Public Services’” which provided electricity in Aleppo (Nett & Ruttinger, 2016, 32). ISIS also established services for education, health services, and resource allocation to attempt to gain legitimacy in the northeastern regions of Syria.

ISIS is Using Water as Weapon

The regions held by ISIS since mid-2015 along the Euphrates and Tigris Rivers are crucial in their fight against the Syrian Kurds, warring rebel and terrorist factions, and the Assad military. By establishing a chokehold on the water supply, ISIS can bend surrounding populations to their will

through extortion. In Raqqa, the “former Credit Bank has been turned into the tax authority that collects payments from business for electricity, water, and security” (DuBois King, 2016, 155). Currently, ISIS controls two dams that are essential for sustaining life in the northeastern regions of Syria, the Tabqa Dam, which provides water to 5 million people and is crucial for crop irrigation, and the Ramadi Dam, which was purposefully closed in order to more easily attack regime forces downstream (Nett & Ruttinger, 2016). ISIS is one the most efficient organizations in using water as a weapon effectively. Using methods developed in Iraq, ISIS can use dams to flood local neighborhoods in order to move in a gain control, can cut off water supplies used for electricity, or tax water supplies at high rates in order to financially control a population while providing them with life giving resources.

Access to water and other resources is also a main motivator in ISIS recruitment. Often targeting young men who harbor deep rooted anti-Assad sentiments, ISIS offers a life of stability in exchange for fighting for the Caliphate. With access to the badly needed resources such as water and oil that ISIS controls in Syria, and the going rate of \$400 a month to fight, about 5 times the wages in the region, it provides the necessary economic and geographic incentives for Syrians who were once simple farmers, to arm themselves for the extremist Islamic group (Nett & Ruttinger, 2016). Water is the difference between life and death in desert laden Syria, and as temperature rise, droughts increase, and terrorism and war wage throughout the country, it will become the key resource to fight over in years and decades to come.

Looking to the Future – What will Become of Syria after the War?

While the wars in Syria will one day come to an end, the impact of the 2006-2011 drought has changed the world as we know it. The Syrian refugee crisis has affected many countries throughout the world, mainly in the Middle East, Greece, and Germany. The mass migration, beginning with those fleeing from drought and continuing with those fleeing from war, has led to large parts of Syria to be completely unoccupied. Many countries harboring refugees have hope that one day their migrants might return to Syria, however, this remains highly unlikely. A study by the United Nations Economic and Social Commission for Western Asia, predicts an increase in temperature by 1.1 to 3.4 degrees Celsius, and an average monthly reduction in precipitation reaching 8-10mm mainly around the west and upper Euphrates and Tigris river basins in the East by 2100 (United Nations, 2015). Syria falls under the category of a water scarce nation, which occurs when the demand for water exceeds the available amount (Cunningham & Cunningham, 2017, 382). Since much of Syria is covered in cold or warm desert, the remaining grasslands in the northeastern regions may be prone to desertification with continued droughts, increased temperatures, and its close proximity to the Hadley cells, which distribute winds that would carry the dry desert soils into the more temperate biomes. Soil degradation due to drought, overgrazing, over-farming, and improper water management over the past 40 years in Syria severely diminishes the crop yield and quality of crops raised.

The UN study also shows that while rises temperatures will lead to more drought, it will also lead to more extreme weather conditions such as heat waves, sandstorms, and flash floods, which are just as devastating (2015). With correct water management and farming techniques, those who remain in Syria’s northeastern regions may be able to adapt to more localized sustainable farms. However, with the occurrence of sand storms or flash floods, an entire crop yield can be demolished within a matter of hours. The United Nation also reports that while the Arab region is responsible for less carbon dioxide emissions than the average developed nation, the Mediterranean Sea is more vulnerable to greenhouse gases. Columbia University’s Richard Seager states, “There’s something

specific about the Mediterranean that is making it hydrologically very sensitive to rising greenhouse gases” (Wendle, 2016, 55). Even with the eradication of war, Syria has many more climate issues to face as a nation, and will not be able to do so in its current political climate.

Combatting Climate Change in Syria: Effective Solutions that May Never be Implemented

As the war in Syria enters its sixth year, and the absence of an effective state government permeates, it is up to the rest of the world to take on the charge of curbing climate change. One of the main factors in producing carbon dioxide emissions in the Middle East is their dependence on oil production to move their economies. While Syria has historically been an agricultural country, since the 1980s, they have become more reliant on oil extraction to gain economic ground. Inorganic pollutants accumulating in the Mediterranean Sea, which leads directly into the Euphrates River combine with the agricultural runoff of the vital northeastern regions, produces a toxic mix in the water which transfers into the area’s soil. One of the major factors in restoring the ecosystem of the semi-arid northeast is to ensure the cleanliness of the water coming through the Euphrates and Tigris Rivers. This would require the Syrian government to create water management facilities that do not extend their boundaries like those created in the 1970s, and create legislation similar to that of the Clean Water Act of 1972, which aimed to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters” (Cunningham & Cunningham, 2016, 420).

The need for sustainable energy will also be a major problem for the people of Syria. With the Assad government ending subsidies for oil for farmers, the dependence on oil throughout the entire Arab nation will need to shift as we reach the global oil peak. Since water is scarce, transitioning to wind or solar energy in the dry deserts of Syria might be the best way to obtain energy in the future. However, once again, this takes government participation and action to even consider. Syria is currently one of three nations not signed on to the Paris Climate Accord, along with Nicaragua and most recently the United States, which pledges to curb manmade greenhouse gases such as carbon dioxide and methane in an effort to stop the climate changing by 2 degrees Celsius. Unless major emissions producers such as the United States, Europe, and the Arab States make the switch to sustainable energy, emissions will continue to rise, the Mediterranean will continue to capture those emissions, and, without the right leadership in the government, countries like Syria will continue to suffer from the effects of climate change.

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