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**Water to War: an Analysis of Drought, Water Scarcity and Social Mobilization in Syria**

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## **Abstract**

This study seeks to examine the relationship between water scarcity, specifically in times of drought, and conflict. There has been a preconceived notion that the 2006 drought sparked individual grievances and manifested into the catalyst to the 2011 Syrian civil war. By utilizing Syria as a case study, this dissertation will demonstrate the weakness of the water scarcity narrative, whilst also examining the importance of social networks within collective action. Quantitative data regarding total annual rainfall, irrigated lands, and number of licensed and unlicensed wells was examined; in addition to qualitative data regarding social mobilization within the varying provinces of Syria. This dissertation does not aim to analyze the civil war, but rather provide a new layer of analysis in explaining the eruption of violence in the nation.

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### **List of Abbreviations**

**FAO-** Food and Agriculture Organization of the United Nations

**FS1-** Farming System 1

**FS2-** Farming System 2

**FS3-** Farming System 3

**FS4-** Farming System 4

**FS5-** Farming System 5

**IPCC-** Intergovernmental Panel on Climate Change

**MENA-** Middle East and North Africa

**MoAAR-** Syrian Ministry of Agriculture and Agrarian Reform

**NSM-** New Social Movement Theory

**RM-** Resource Mobilization Theory

**SMB-** Syrian Muslim Brotherhood

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## **Graphs and Tables**

### **Graphs**

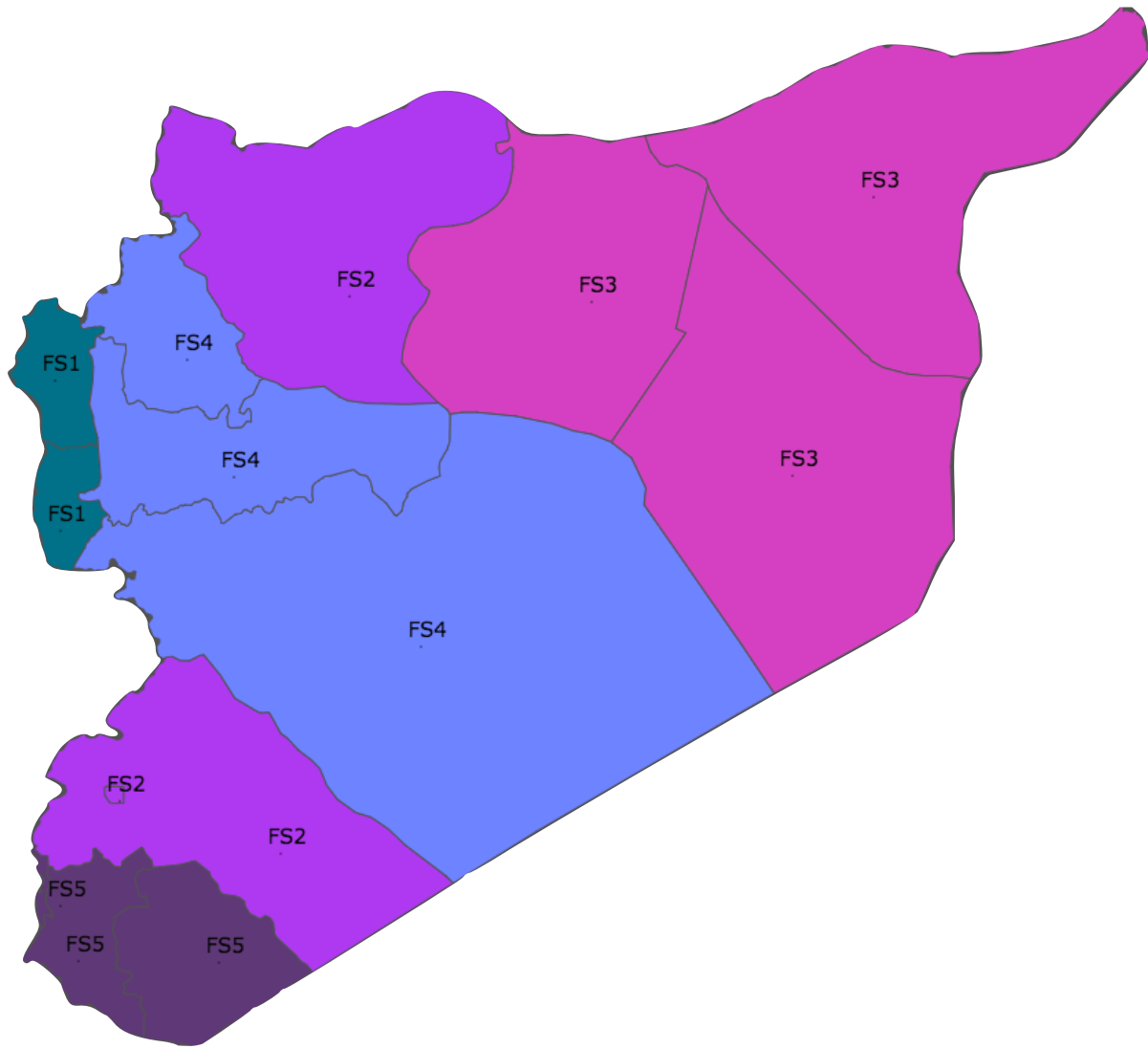
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**Reference Map - Syria's Farming Systems**



## 1. Introduction

Recent debates concerning climate change make a bold assertion that conflict may erupt in wake of environmental scarcity, specifically water availability. The Middle East and North Africa (MENA) region notoriously “experiences frequent droughts and a looming water supply shortage” (World Bank, 2018). With an increasingly growing population and a greater push for agricultural production, the Intergovernmental Panel on Climate Change (IPCC), estimated that an “additional 80 million to 100 million people will be exposed to water stress by 2025” (Ibid, 2018). Droughts, nonetheless, are not a recent phenomenon for the MENA region. The region has experienced several droughts, and over time has acquired strategies for adapting to climate variability. The limited availability of surface water has forced countries to tap into their groundwater reserves, depleting their environmental resources. Depletion of the reserves has been a recurring issue because many countries over-extract ground reserves (Tropp, 2006). Furthermore, the rapidly increasing nature of agricultural production has exposed the issue of groundwater extraction.

Until now, the “relative water scarcity” within the region has not inhibited countries from continuing with their agricultural production. In fact, many MENA regimes have not prioritized the implementation of robust water management policies. The main objective for these countries is to remain net exporters in the agricultural sector. Proponents of the water scarcity argument would contend that droughts will eventually limit agricultural production; sparking individual grievances and eventually provoking conflict among agriculturally dependent rural populations. In other words, droughts will first spark dissent, contributing to the onset of a civil war. This leading narrative, however, simplifies and overlooks other relevant socio-political structures.

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This dissertation aims to contribute to the climate change and conflict narrative. By utilizing, Syria as a case study, this paper will *challenge* the notion that water scarcity indeed leads to conflict. Instead, water scarcity disguises other socio-political structures. The claim that water scarcity is, *ceteris paribus*, a significant contributor to conflict is a reductive and misleading narrative. This paper does not seek to discount the relevance of water scarcity, but rather to highlight the complex interplay of other sociopolitical factors. Specifically, inter-regional variation in agricultural-dependency and the varying structures of civil society, ought to be taken into account.

In order to disclaim the notion that the 2011 Syrian civil war was initiated by the devastating 2006 drought, this dissertation will analyze the area of irrigated lands of the varying governorates, water usage, and organizational structures of civil society within the past twenty years (from the years of 1991-2011). The main aim of this research is to answer two pressing questions.

- **To what extent was the conflict triggered by the grievance of the drought?**
- **How does social mobilization and organizational structure within the varying protests explain the eruption of protests in 2011?**

This paper opens with a brief overview of Syria's current situation and its agricultural and economic reform of the 1990s. A literature review regarding the subject matter of drought, conflict and social mobilization accompanies the introduction. I will devote the third section to explaining the methodology used to collect, analyze and categorize the data. I follow this with a discussion of the data in the context of the two primary theses; I will first contrast the quantitative data with the water scarcity narrative, showing that the data does not necessarily support the statement that drought leads to conflict. Secondly, I will analyze the social mobilization theory in the context of the further qualitative data, demonstrating the importance of social capital. Finally, the last section will conclude by

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integrating the quantitative and qualitative data, to demonstrate the importance of intertwining social mobilization in the water scarcity narrative.

### 1.1 Syria as a Case Study

Inspired by the widespread protests in Tunisia and Egypt, thirty Syrians residing in the province of Dara'a ran into the streets, challenging the policies of the repressive regime (Kahf, 2014). February 25, 2011, marked the end of Syria's immunity to the Arab spring. Two days after the initial protests, "twenty boys were imprisoned for writing 'freedom' and the 'the people want the fall of the regime' on the walls of their school" (Kahf 2014, p. 558). By March 2011, many governorates became host to protests, including Idlib, Latakia, Deir Ezzor and Hama (Ibid, 2014). Seven years later, Syria still finds itself battling the turmoil of the civil war. The purpose of this paper is not to dissect the conflict, but rather to analyze the *specific* claim that water shortages contribute significantly to the threat of conflict.

Syria is an intricate story. Many factors play a role in explaining the eruption of the conflict. The influence of widespread social media and the encompassing wave of the Arab Spring, poor governmental policies, the authoritarian nature of the regime, diminishing rate of state subsidies, and the overall political structure of the country, had an impact on the uprising. While these factors hold a significant amount of weight, academics have overlooked the *meso* level of the civil society- the ability to mobilize. Therefore, this paper will not argue that the aforementioned factors were not impactful, but rather add another level of analysis by integrating the grievance versus social mobility debate with the water scarcity narrative.

The agriculture sector accounts for the largest expenditure of water. The global average for water usage in the agriculture sector is around 70% (Khokhar, 2017). Moreover, according

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to Sagardoy (2003), agriculture accounts for nearly 85% of water usage in Syria. Insofar as Syria's water usage stands nearly 15% ahead of the global average then it would be empirically interesting to analyze water usage within irrigated land in the thirteen provinces. This will provide a more accurate image of the situation of Syria prior to the 2011 conflict- if water scarcity, in fact, leads to conflict, one would expect that the provinces *most dependent on agriculture and affected by the drought*, would protest *first*. This dissertation will explore whether grievance concerning the drought was a factor triggering the protests, or whether it was the structural organization in society. Syria, therefore, becomes a prime case study due to its exposure to droughts, agricultural water usage, and the varying degrees of social networks throughout the governorates.

### 1.2 Syria's Agricultural and Economic Reform of the 1990s

Syria's path to economic growth has been marked by the modification of its agricultural sector in the 1990s, altering from a "centrally planned economy" into a "social market economy" (Rocchi, 2013). The late President Hafez Assad aimed to develop Syria's economy in pursuit of social liberalization. One of the many laws that were introduced in this period was the 1991 Investment Law No. 10. The law had magnifying effects and unintended consequences. The 1991 Investment Law No. 10 opened up certain sectors, such as "agriculture, industry and transport" to internal and external investors (Hopfinger 1996, p.192). While the "same privileges are granted for all investment projects" regardless of their governorate, Aleppo and Damascus attracted three-quarters of investors (Hopfinger 1996, p.197). This meant that Aleppo and Damascus were less dependent on agriculture, compared to the other governorates with the lower concentration of investment projects, such as Hassake or Raqqa (Ibid, 1996). In other words, the government overlooked an unexpected issue that would arise due to the implementation of this law: regional disparities. In short, in addition to adjusting the political economy, the 1990s marked an era of agricultural reform.

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Six crops are deemed as strategic: wheat, barley, lentils, chickpeas, cotton, tobacco and sugar (Fiorillo, 2003). Before the 1990s, most crops were determined by median prices. However, after the 1990s, only the major strategic crops were subjected to governmental prices (Hinnebusch, 2011). Strategic crops were only priced to farmers who sold their crops to the government (Zevenhuizen, 2016). According to Hinnebusch (2011), the prices have been “frozen” since 1996, in order to mitigate the difference between domestic and international prices. This encouraged farmers to continue with their agricultural production. Only barley, chickpea, lentils and sugar beet prices have been altered since 2005 (Hinnebusch, 2011). Agricultural subsidies remain an important factor for national production. In 1986, the Supreme Agricultural Council declared that production prices “should be in line with the cost” (Hinnebusch, 2011). Therefore, the government promoted the use of “improved seeds and chemical fertilizers;” subsidies for fuel were also provided (Hinnebusch 2011, p.28). In recent years, the number of subsidies has dwindled. Currently, there remains a subsidy for fuel and fertilizers, and hard and soft wheat seeds; however, the amount has dramatically decreased (Ibid, 2011).

Syria aimed to be self-sufficient in wheat production; this would be achieved by increasing both “national strategic stocks” and “planting of enough land” to ensure there would be enough wheat, even in times of drought (Fiorillo, 2003). The state’s “state-led export promotion” led to a 38% increase in irrigated farmland in the northern and northeastern region of Syria (Raphaeli, 2007). Irrigated land for wheat rose from 45% in 2008, compared to 14% in 1981 (Barnes, 2009). With the agrarian reforms, Syria soon saw itself as a wheat exporter, rather than an importer, as it was in previous years (Seifan, 2011). Nevertheless, with the expansion of agricultural production, Syria also found itself in a predicament- the nation’s water reserves were diminishing. Water management policies became secondary to the agricultural production. Corrupted policies were enacted, which failed to preserve the nation’s water reserves. The push for agrarian reform outshined the need for protective water policies.

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## 2. Literature Review

There are two overarching frameworks which will be used to analyze Syrian agricultural production, drought, and eventual uprising. The integration of the water scarcity narrative and social mobilization theories will provide a compelling lens through which to further understand the Syrian civil war.

Recent studies focusing on climate change, and specifically water scarcity, have drawn attention to the linkage of droughts and outbreaks of conflict within countries. Water scarcity “undermines the capacity of states to the opportunities and services that help people to sustain their livelihoods” (Barnett & Adger 2007, p.640). In times of annual water shortage, countries dependent on the agricultural sector, such as the Middle East, encounter a reduction of “agro-pastoral productivity,” amplifying political tensions (Feitelson & Tubi, 2017). Homer Dixon (1999) presents a compelling framework, attributing conflict to environmental scarcity. He argued that environmental scarcities leave the population frustrated due to the deprivation of resources; the regime then pits various groups against each other; weakening the overall state and allowing the formation of an insurgency group (Homer Dixon, 1999). Goldstone (2001) echoes Homer Dixon’s sentiment and further argues that feelings of dissent increase among the population when the government implements poorly managed policies in times of droughts, or other natural disasters. Natural disasters, therefore, have the ability to either increase or decrease “government’s’ popularity” (Olson, 2010).

Salehyan & Hendrix (2014, p.9) contrast this prominent argument, and instead suggest that “water scarcity might have a pacifying effect on armed conflict,” and controversially “water abundance is positively correlated with political violence.” In times of “better agro-climatic conditions,” insurgency groups arise due to the available and accessible resources (Salehyan & Hendrix, 2014). Nevertheless, the aforementioned arguments

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simplify the overall the relationship between environmental scarcity and conflict into a linear or causal relationship. Instead, it is imperative to consider various factors such as the social, economic and political realities of a country (Feitelson & Tubi, 2017). Furthermore, Fröhlich (2016) and Slettebak (2012) argue against the notion that environmental conditions, alone, lead to conflict. Instead, it is vital to identify how the “economic, political, demographic, social and environmental factors” intertwine, thus providing a more accurate analysis of why or how conflicts erupt (Fröhlich 2016, p.38). For instance, Benjaminsen (2008) put forward a compelling argument that the drought of the 1970s and 1980s was *not* the leading motivation behind the rebellions in Mali. Instead, “the migration of young men to Algeria and Libya” and exposure to “revolutionary discourses” played a more prominent role in the eruption of violence (Benjaminsen 2008, p.832). The relationship between environmental scarcity and conflict cannot be reduced to a linear correlation.

Prior to the 2011 Syrian uprising, the country experienced one of the most devastating droughts between the years of 2006-2008. According to Gleick (2014), nearly 1.3 million Syrians residing in the eastern region were affected. Many academics argue that the shortage of rainfall had a detrimental effect on the agricultural sector, igniting grievances among the population and thus initiating protests. Kelley(2015, p.3241) notes that the combination of “poor governance and unsustainable agricultural and environmental policies” led to the “political unrest.” De Châtel (2014) contends that it was *not* the drought *itself* that was the catalyst to the revolution, but rather the government’s inability to respond to the natural disaster. In other words, droughts alone do not cause conflict, it is the vulnerability and lack of resilience to the natural disasters that sparks dissent. For instance, both Iraq and Turkey experienced the same drought; yet, due to various political policies that were preemptively implemented, the respective countries were able to enhance their adaptive capacity and become more resilient, inhibiting the possibility of a revolution from erupting (Eklund, 2017). In the face of the drought, Syrian farmers

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“sought to increase supply by turning to the country’s groundwater resources” (Werrell 2015, p.33). According to Syria’s National Agricultural Policy Center, there was a 63% increase in the depletion of groundwater reserves (Werrell, 2015). The state encouraged farmers to increase agricultural production, which made the farmers more vulnerable in the wake of the natural disaster. Therefore, the state’s authority is contingent on its ability to provide services that are vital to its citizens’ survival in times of distress, offsetting protests (Mann, 1984).

The people of Dara’a protested in 2011. Yet, the 2006 drought was not an isolated event; “[o]ver the last 50 years, from 1961 to 2009, Syria experienced nearly 25 years of drought, which represents over 40% of the period” (De Châtel 2014, p.522). Therefore, there must be an *additional* element beyond grievance that explains why Syrians protested in 2011. Furthermore, it is important to explain why or how the social movement occurred. There are three main frameworks which analyze the formation of movements: the new social movement theory (NSM), resource mobilization theory (RM) and social constructionism (SC). NSM analyzes “the macro level of structure and context;” RM addresses “the meso level of organization and strategy;” finally, SC accounts for “the micro level or identity and grievances”(Buechler 1995, pg.430). NSM stems from a “systems seeking to maximize production, money, power and information” (Buchler, 1995; Touraine, 1992). NSM stems from a “system seeking to maximize production, money, power and information” (Buechler, 1995; Touraine, 1992). Melucci (1996) argued that collective action occurs after a societal transformation of the economic system. In other words, NSM differentiated itself from previous social movement theories by attributing mobilization to the post-industrial economy. It attempted to describe social movements since the mid-1960s, which were concerned with human rights, rather than material benefits. Overall, the new middle class is a key element, in explaining why social movements occur.

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Resource mobilization academics argue that the NSM theory did not necessarily factor in “cultural and the structural strategy and identity” within the narrative (Morris 1992, p.5). However, RM does not focus on individual grievances. Academics like Tilly (1978) and Oberschall (1978) argues that grievance is not the primary factor in explaining why social movements form, for “grievances are relatively constant, deriving from structural conflicts of interest. Instead, what is important are societal structures and organization (Jenkins, 1983). The resource mobilization theory takes into account a series of factors, such as “linkages of social movements to other groups, the dependence of movements upon external support for success,” and overall the social capital within a country (Mccarthy 1977, p.1213). To a large extent, it explains how actors develop strategies “ and interact with their environment in order to pursue their interests” (Canel 1997, p.3). Morris (1992, p.5) contends that the organizational structure is the “primary social unity of resource mobilization,” whereas the “social network of face to face encounters” is the primary element of social constructionists.

SC emphasizes “sudden increases in short-term grievances created by ‘structural strains’ of rapid social change” (Jenkins 1983, p.528). Social movements, then, occur as a reaction to “new values” or a “culture shift” (Edwards, 1995). The center of the argument is that individuals’ desires and grievances spark social or collective action. SC “emphasize[s] the decision processes shaping interests and grievances” when hypothesizing about why social movements occur (Ennis, 1987). “Frustration, anger, alienation” are factors, explaining why conflict erupts (Jasper, 1998). Proponents of SC would argue that individual grievances ,due the drought, sparked the conflict. Moreover, individual emotions can provoke protests. This theory takes on a bottom-up approach in explaining the nature of social movements.

Moving forward I will draw heavily upon the social movement theories posited by the aforementioned authors. The introduction of these frameworks serve as an effective

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complement to the empirical argument, argued below, that discredits proponents of the water scarcity narrative.

### 3. Methodology

At the preliminary stage a brief literature review was conducted for the purpose of initial guidance and identification of critical arguments about water scarcity, drought, social movements, and conflict. Utilizing databases and academic journals, including Scopus, Jstor, and International Bibliography of Social Sciences, academic articles were evaluated and chosen based on their relevance to the subject matter. Articles were systematically selected based on keywords, including “water scarcity and environment,” “conflict and climate change,” “social movements and conflict,” “resource mobilization theory,” “Syria and conflict,” “new social movement and civil war,” and “grievance and natural disasters.”

After identifying the main frameworks regarding water scarcity and social movements, data was extracted and translated from Arabic to English from the Syrian Ministry of Agriculture and Agrarian Reform’s (MoAAR) website between the years of 1991 to 2011. In order to demonstrate that the drought, *alone*, was not a primary motivation for the protests, this dissertation focuses on three sets of data: total annual rainfall, irrigated lands, and the number of licensed versus unlicensed wells. This decomposition of water shortage into its various types allows for a fine grain of analysis when considering the interplay with the socio-political factors involved.

While MoAAR’s website is comprehensive, the information is not presented in a uniform manner. In recent years, additional data sets on agricultural production are provided to those in the early 2000s and 1990s. Therefore, there are two significant limitations when analyzing the data. The first apparent gap concerns the irrigated lands and total annual

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rainfall datasets. First, the years of 1994 and 2005 are missing. However, this will not have a negative impact because the aim is to demonstrate the overall average and not the specific years - the data missing from the two years of 1994 and 2005 is insignificant compared to that collected in the years of drought. Secondly, regarding the data on licensed versus unlicensed wells, there is virtually no data present prior to 1997. Therefore, unlike the other two datasets, the years from 1997 to 2011 will be analyzed, rather than from 1991 to 2011. Overall, I will analyze whether there exists a correlation, making no causal inference.

The drought that struck Syria did not uniformly affect the varying provinces. Hence, the data was segregated and analyzed based on the different farming systems, in order to present a more accurate image. Adopting Wattenbach’s (2006) research, conducted with the Food and Agriculture Organization of the United Nations (FAO), and with the support of the Syrian Ministry of Agriculture and Agrarian Reform (MoAAR), this study divided the 13 *Mohafazat* (or governorates) based on similarity in terms of weather patterns and agricultural production.

Wattenbach’s (2006) framework explicitly defined six farming zones; however, certain provinces were presented in overlapping farming systems. Wattenbach (2006) was able to attain data about the specific governorates and “potential sub-zones within them.” For instance, the lined was blurred between zone 1 and 2, where parts of Lattakia were included in both. Hama and Homs were included in zone 3 and 6. However, for the purpose of this research and due to data constraints presented on

<u>Farming System</u>	<u>Mohafaza (Governorate)</u>
1	- Lattakia - Tartous
2	- Damascus - Rif Dimashq ( Rural Damascus) - Aleppo
3	- Deir Ezor - Raqqah - Hassake
4	- Hama - Homs - Idlib (including Ghab)
5	- Dara’a - Al Sweida - Quneitra

Table 1: Farming Systems  
Based on Wattenbach (2006)

the MoAAR's website, the Farming Systems were condensed into five zones.

Rather than dividing the provinces, into overlapping zones, it proved more useful to include them in a single zone. The data presented on the MoAAR's website was separated by provinces and did not provide selected *Mantikas* (or areas) within the *Mohafaza*. Due to this constraint, this research altered Wattenbach's (2006) framework. This does not negatively impact the study, because the purpose is not to explicitly analyze the *Mohafazat*, but rather highlight the regional similarities in terms of agricultural production, water usage, annual rainfall and licensed and unlicensed wells over a period of twenty years.

The quantitative data alone was not substantial to answer the research questions. Therefore, secondary qualitative academic articles, regarding social mobility and the formation of social movements, complimented the quantitative portion of this research. The meso level analysis of social movements, the Resource Mobilization Theory, will expose an overlooked factor of why protests initiated in Dara'a first, compared to the other provinces, including Hama (FS4), Deir Ezzor (FS3) and Lattakia (FS1). The application of both the Resource Mobilization theory and the New Social Movement theory will, therefore, help explain how Dara'a's organizational structure and social networks lead to the eruption of conflict first. Below is a short description of each farming zone, which will provide the basis for the data analysis.

### 3.1 - Farming System 1 (FS1):

The "coastal region", encompassing Lattakia and Tartous, focuses on fruit, specifically citrus, and greenhouse production—"nearly 52% of the cropped land include[s] irrigated citrus" (Wattenbach 2006, p.22). Most of the crops grown occur under "private production and marketing regime" (Wattenbach, 2006). The coastal region has an abundance of water,

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given the “mild climate and favorable agro-ecological conditions” (Santermo, 2012). Therefore, more than 50% of the region is cultivable for agricultural production (Wattenbach, 2006). Rural residents do not depend on agricultural output nearly as much as other regions. Nevertheless, the infrastructure and “market access” makes the agricultural sector quite lucrative (Santermo, 2012). Due to the free market arrangements, strategic crops, such as wheat, have “relatively little importance” (Wattenbach, 2006). Overall, this region is characterized as having a relatively educated population, with lower poverty rates.

### 3.2- Farming System 2 (FS2):

The “Hilly and Mountainous regions of Damascus, Rural Damascus and Aleppo” accumulate “high annual rainfall and present large extents of perennials and forests” (Santermo, 2012). Due to the steep slopes, nearly 51% of the area is uncultivable (Wattenbach, 2006). Therefore, agriculture is not the main source of income for small farmers, rather they depend on livestock or tree crops: such as apples, cherries, and olives (Santermo, 2012). This region accounts for “10% of the total cultivated area in the country,” and nearly “81% of the cultivated area is rainfed” (Wattenbach 2006, p.29). Unlike FS1, the overall agro-climate conditions, including soil quality, are not conducive to high rates of agricultural production (Wattenbach, 2006). The rates of those dependent on agricultural have steadily declined over the past few decades, due to the “improvements in the education systems and social changes” (Santermo, 2012).

### 3.3 - Farming System 3 (FS3):

The “northern and northeastern plains of Syria”, comprising of Deir Ezzor, Raqqah and Hassake, have lower annual rates of rainfall ( Wattenbach, 2006). Yet, they account for one of the largest areas for agricultural production. Due to the strategic location between Assad Lake and the Euphrates River, this area heavily depends on large private irrigation

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schemes (Wattenbach, 2006). Therefore, even prior to the drought, there was an overuse of groundwater reserves. The crops that are grown in this region are heavily monitored by the government, for it is considered to be a “strategic” farming system (Wattenbach, 2006). It is dominated by crops such as barley, cotton, wheat, and lentil (Ibid, 2006). Compared to the other Farming Systems, FS3 has a low population density with lower education rates (Ibid, 2006). Moreover, it is highly reliant on the agricultural sector.

#### 3.4 - Farming System 4 (FS4):

FS4 includes the “central rainfed and irrigated plains of Homs, Hama, and Idlib” (including Al Ghab), which experience “relatively favourable temperate climate with the good market access” (Wattenbach, 2006). FS4 is classified as having a great importance due to its production of pistachio, almonds, potatoes and sugar beet (Ibid, 2006). With a higher rural population density, land usage in FS4 tends to be quite intensive. Moreover, infrastructure has been regularly improved, “creating overall very good market access to large urban markets” (Ibid, 2006). Due to the market access, dependence on agriculture has declined, and support for trade and industry has rapidly increased, particularly after the implementation of the Investment Law No 10 in 1991. (Ibid, 2006).

#### 3.5 - Farming System 5 (FS5):

The “Southern semi-arid plains and mountains” of Al Sweida, Dar’a and Quneitra is “characterized by a highly market integrated production structure,” with good market access to Damascus and “neighboring countries” (Wattenbach, 2006). FS5 tends to be mostly dominated by private production. Some of the most important crops of this region include chickpea, tomato, cucumber, and with apple being the most important crop for poor farmers (Ibid, 2006). Due to the exposure of different markets, both domestically and internationally, this region tends to have a higher level of income compared to the national

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average (Ibid, 2006). Nevertheless, this region does not entirely depend on agricultural production, there “is a high dependence on Government employment,” which complements their household income (Ibid, 2006).

#### **4. The Controversial Theory of Water Scarcity: Initial Findings**

As discussed above, there is a preconceived notion that the drought of 2006 was, by itself, a significant catalyst for the civil war. Proponents of this argument note that it was not necessarily the primary cause, but one of the *leading* drivers. But even this weaker claim is misleading for three main reasons. First, the drought did not uniformly affect the thirteen provinces. Secondly, many provinces do not depend on surface water for agricultural production; instead, groundwater reserves appear to be vital. Third and most importantly, Syria has *repeatedly* experienced droughts and faced water insecurity, but in most of these instances *did not* experience any form of civil unrest. It, therefore, remains to be determined exactly why conflict did not erupt in these situations, and in so doing question whether water scarcity, far from being a sufficient condition for unrest, is even a necessary condition. The purpose of this section is to discuss the initial findings of the quantitative portion of the data. The qualitative portion will then compliment the original data in the next chapter.

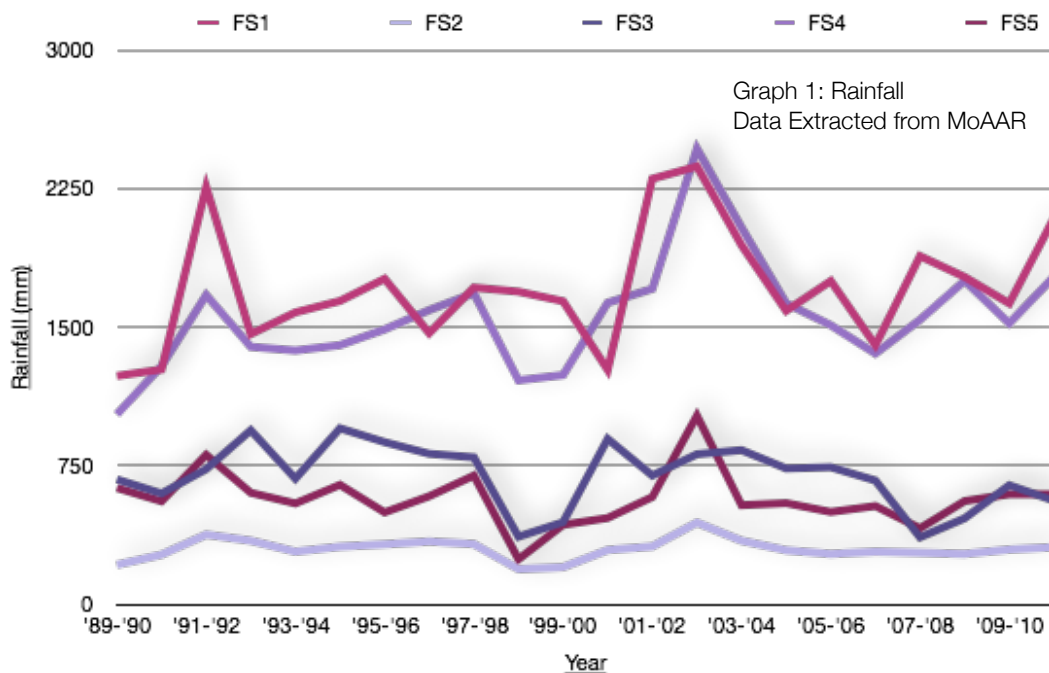
##### **Three main findings arose from the quantitative portion of this dissertation:**

1. The notion that the 2011 civil war was sparked by the 2006 drought is questionable. Syria has experienced droughts before, at times even more devastating than the 2006 drought. Thus, evidently that there are other factors that explain why civil war erupted in Syria.
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2. The areas that first protested did not exclusively depend on agricultural production for their livelihoods, as the theory would require. If the drought was the catalyst to the civil war, then FS3 should have protested first. This did not occur.
3. Many governorates rely beyond surface water sources for agricultural production. Both licensed and unlicensed wells provide an extensive amount of water. In the areas in which the agricultural reform of the 1990s was focused on, such as FS3, the number of licensed wells dramatically increased, whereas in other areas, the number of unlicensed increased.

#### 4.1 - The Drought of 2006 versus 1998

Graph 1 depicts the annual average rainfall of all five farming systems over a twenty year period. The average of each province within the Farming System were combined and plotted on a graph to illustrate the overarching trend of rainfall. Farming System 1, Lattakia and Tartous, and FS4, Hama, Homs and Idlib, tend to have the most annual rainfall; while, FS2, Damascus, rural Damascus and Aleppo, accumulate the least.



From this graph, it is noticeable that throughout all Farming Systems in Syria, there was a dip in annual rainfall in the years of 1998-1999, much comparable to the 2006-2008 drought. Drought disproportionately affects provinces, and below is an example of the annual percentage difference within the various Farming Systems.

Table 2: 1998 vs 2006 Data Extracted from MOAAR	<u>1997 (in terms of mm)</u>	<u>1998 (in terms of mm)</u>	<u>Percentage Difference</u>	<u>2006 (in terms of mm)</u>	<u>2007 (in terms of mm)</u>	<u>Percentage Difference</u>
FS1	1467.07	1714.25	16.8%	1749.77	1401.63	-19.9%
FS2	324.9	189.2	-41.7%	271.39	283.60	4.5%
FS3	794.7	364.88	-54.09%	669.03	361.47	-45.97%
FS4	1683.34	1211.61	-28.02%	1356.74	1539.87	13.5%
FS5	695.67	242.3	-65.17%	530.93	410.33	-22.7%

According to Table 2, the 2006 drought was in fact not as tumultuous as the previous drought. FS1, FS2, FS3, FS4, and FS5 respectively saw a 16.8%, -41.7%, -54.09%, -28.02% and -65.17% decrease in 1998. On the other hand, in 2006 the decline was not as dramatic, with the respective numbers being -19.9%, 4.5%, -45.9%, 13.5%, -22.7%. Within FS5, Dara'a alone, experienced a 61.8% decrease in annual rainfall between the year of 1997 and 1998, while between the years of 2006-2007 it experienced a 7% percent decrease. If the drought was the cause of the instability in the country, then a civil war would have erupted in the late 1990s. However, this was not the case. Once again, indicating that there were more prominent drivers in instigating this conflict.

#### 4.2 Dependency on Agriculture?

While there is a perception that the uprising was inspired by the drought, the quantitative portion of this research does *not* necessarily support this statement. Data regarding irrigated land was extracted and segregated based on the different Farming Systems.



From the data, it is apparent that FS5 was least dependent on the agricultural sector, for it had a reasonably diversified economy, as did FS1, FS2. On the other hand, the agricultural reform of the 1990s transformed FS3 into the most dependent region, expanding the irrigated land at an unprecedented rate.

Table 3 exhibits the eight years that have been highlighted from the twenty-one years of analyzed data. These years marked an important shift; therefore, it is crucial to address them.

1991	Beginning of the agricultural reform and implementation of Investment Law No. 10
1996	Two years before the drought
1998	Drought
1999	End of drought
2000	Nearly 10 years after agricultural reform
2006	Drought
2009	End of drought
2011	Beginning of conflict

Table 3: Vital Years

#### Irrigated Land (Hectares)

	<u>FS1</u>	<u>FS2</u>	<u>FS3</u>	<u>FS4</u>	<u>FS5</u>
<u>1991</u>	53,659	171,326	355,342	170,849	17,613
<u>1996</u>	56,373	180,669	267,749	209,525	31,957
<u>1998</u>	59,501	212,989	657,987	220,503	28,597
<u>1999</u>	60,148	226,055	625,539	216,152	26,125
<u>2000</u>	60,395	220,165	642,293	227,172	29,465
<u>2006</u>	59,507	271,037	769,601	268,131	33,876
<u>2009</u>	63,917	265,410	616,749	255,018	39,254
<u>2011</u>	66,130	287,498	741,194	261,736	42,875

Table 4  
Data Extracted from MOAAR

As previously stated, 1991 was the beginning of the agricultural reform. Of all the five farming zones, undoubtedly, FS3 has the most hectares of irrigated land, nearly twenty times more than FS5, encompassing Dara'a. Between the years of 1996-1997, irrigated land in FS3 grew by nearly 82%.

An observable jump occurs between the years 1996 and 2000. FS3 experienced a 139.9% percentage difference, whereas FS1, FS2, FS4, respectively saw a 7.1%, 21.8%, 8.4% percentage difference. Unlike the other regions, between the years of 1996 and 2000 FS5 saw an 8% drop within irrigated lands.

Exposure to drought in both the year of 1998 and 2006 affected agricultural production in Syria. In the years of 1998-1999, FS1, FS2 witnessed an increase of agricultural production, whereas FS3, FS4, FS5 respectively experienced a -5%, -2% and -9% drop in irrigated lands.

The second drought of 2006, impacted agricultural production in the Farming Systems even more than the 1998 drought. Between the years of 2006 and 2009, FS1, FS2, FS3, FS4, and FS5 saw a respective percentage difference of 7%, -2.1%, -19.9%, -4.9%, 15.9%. It is expected that the majority of farming systems would have experienced a decrease in irrigated land during the drought years. However, FS1 and FS5 saw a remarkable increase, especially FS5's near 16% increase in irrigated land. The data illustrated an unexpected change in FS5.

If the water scarcity narrative was fully applied, the assumption follows that there would be a diminishment of irrigated land in the area that conflict originally broke out in. On the contrary, Dara'a, the earliest riser in the conflict, did not bear the explicit burden of the drought, for agricultural production expanded in the years where water was supposedly "scarce." This implies that water scarcity was perhaps not the main driver behind the Dara'a uprising. If anything, FS3 should have assumed the role of early risers for its unwavering role in the agricultural production of strategic crops, such as durum wheat. This provides a compelling basis against the water scarcity narrative.

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### 4.3 Looking Beyond the Surface

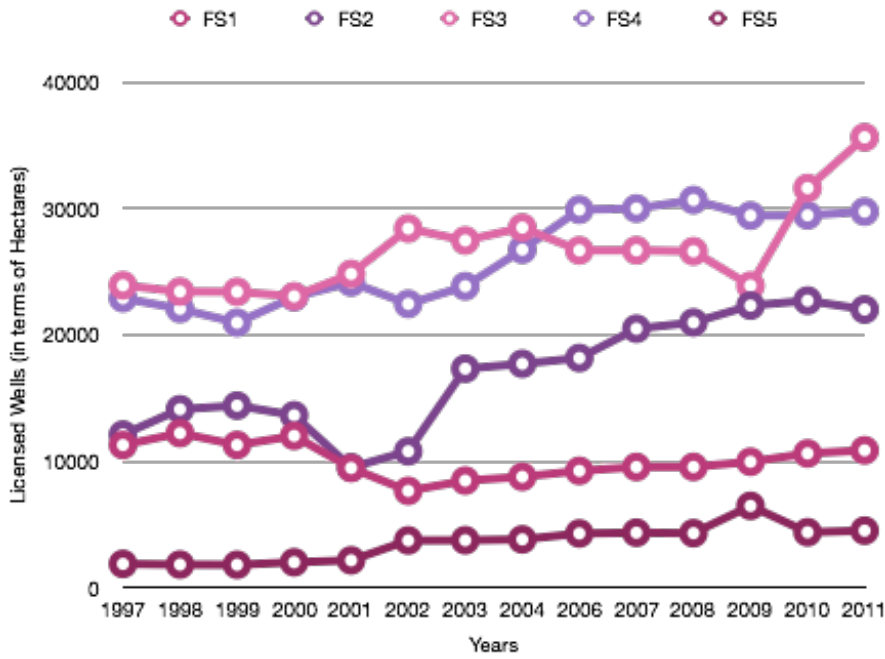
Thus far, the “lack of water” to war, perspective treats water supply as a monolithic block, and in doing so loses a significant degree of nuance. This section looks beyond surface water and distinguishes between rainfall (surface water) and ground reserves. A further distinction can be made between groundwater extracted by legal channels (licensed wells) and illegal (unlicensed wells). Once drawn, these distinctions reveal the inefficacy of rainfall as an indicator of agricultural prosperity, because dependency on rainfall for agriculture is not distributed equally across regions. Therefore, the lack of rainfall and has varying impact across the respective farming zones.

While surface water plays a prominent role in agricultural production, many provinces depend on groundwater reserves; thus, temporarily bypassing the negative consequences of a drought. The 1990s proved to be a challenging era for agrarian reform, exposing the need to license all wells and protect the water supply. Nearly, one-fourth of all wells were unlicensed in 1999 (Sagardoy, 2003). By 2001, the government implemented a law, “stating the obligation of licensing all wells” (Sagardoy, 2003). This was a governmental attempt to implement better water management policies. This law, nevertheless, has not been successful in licensing all wells.

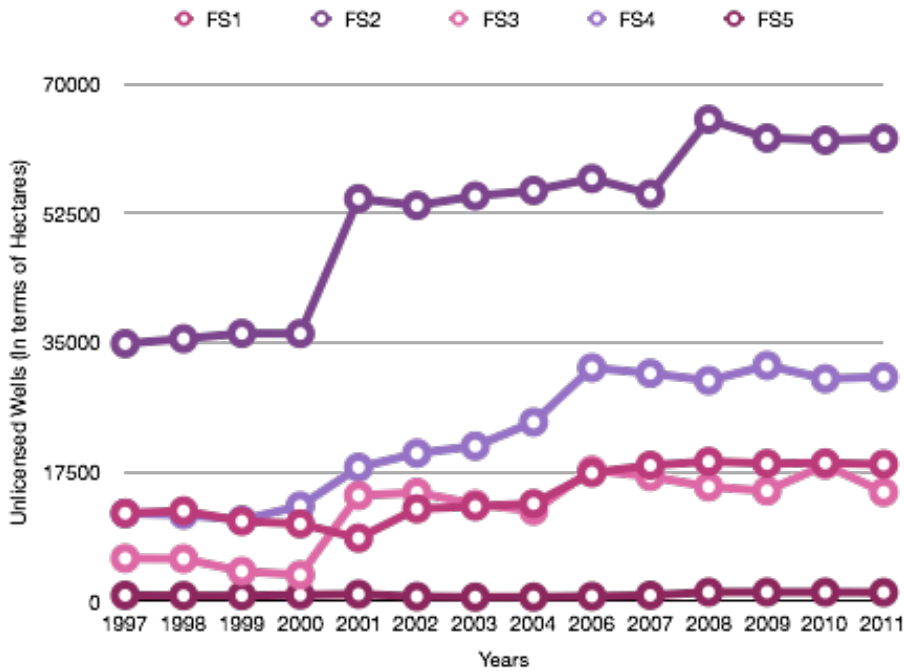
The third dataset, regarding licensed and unlicensed wells, would appear to reveal a strength in the water scarcity narrative. Indeed, the areas that received more of the government's attention, such as FS3, saw an increase of licensed wells; whereas FS5, the early riser, did not. Proponents of the water scarcity argument would argue this can be a justification for the Dara’a protests; coupled with the decrease of total rainfall, protests erupted. However, this is far too simplistic. This section will maintain and argue that water scarcity *is not* an instigator of conflict.

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Graph 2 and 3 illustrate the general trends of licensed versus unlicensed wells between the years of 1997 and 2011.



Graph 2: Licensed Wells  
Data Extracted from MoAAR



Graph 3: Unlicensed Wells  
Data Extracted from MoAAR

According to the graphs, FS3 saw a significant increase in licensed wells, an outlier compared to other Farming Systems. FS3's licensed wells significantly outweigh unlicensed wells. The government knew that "the adoption of modern irrigation techniques is crucial for the country's development of irrigated agriculture" (Sagardoy, 2003). It, therefore, assumed the role in maintaining and operating the irrigation to improve agricultural output in FS3 (Sagardoy, 2003). The law that was previously implemented proved to be successful in FS3, where it saw an increase in licensed wells. The government disproportionately attended to FS3 because it aimed to transform it into a strategic agricultural powerhouse. The main takeaway from these two graphs is that FS3 was merely an outlier because the government disproportionately implemented better irrigation systems there. Contrarily, the government failed to improve irrigation systems in the other Farming Systems. FS5, for instance, is on the lower end of the spectrum on both types of well. It is possible that FS3 did not protest due to the implemented robust water management policies; whereas, other Farming Systems like FS5 did. This demonstrates a strength in the water scarcity narrative.

However, current statistics have shown that there are other viable water resources for agricultural production. Table 5 illustrates the average water sources utilized for the irrigated land in the respective Farming System between the years of 1991-2011.

Irrigated Lands (Hectares) according to the source of water				
	Government Projects (including Dams)	Wells	Rivers, Springs, and Others	Total
FS1	15,855.6	8,357.37	5,211.4	29,424.3
FS2	29,310	68,500	16,547	114,292
FS3	31,157	136,750.5	50,310.4	212,505.1
FS4	20,105.4	34,301.05	3,078.5	57,773.8
FS5	4,173.8	4,654.4	2,177.2	11,005.3

Table 5  
Data Extracted from MoAAR

At first glance, FS3 stands as an outlier with an extraneous amount of water dedicated to irrigated lands - while, FS5, encompassing Dara'a, lies on the lower end of the spectrum. However, while government reforms targeting FS3 may appear to have given the region a comparative advantage, a closer analysis of the water available in FS5 shows that, when unlicensed wells are accounted for, FS5 was still relatively comfortable.

Here then, the thesis crystallizes: while certain areas seem to have thrived either as a result of their rainfall, such as FS1, or as a result of licensed well reforms (FS3), these apparent advantages are *offset* in other regions by less commonly discussed sources of water (namely, unlicensed wells). Therefore, the thesis that water scarcity significantly increases the risk of conflict is too strong; the relationship between water scarcity and conflict, is not quite as significant when all sources are taken into consideration.

This alone is not to discount the difference; FS5 *did* ultimately suffer more as a result of the drought than other farming systems. However, once different sources are accounted for, the variation is not quite as severe.

It is a strong statement to merely claim that the drought was a leading driver for the instigation of violence. Unlicensed wells are ubiquitous in the nation. Therefore, while the government did focus on FS3, the other farming systems indeed compensated by creating unlicensed wells, such as FS5. At this stage, it is far too simplistic to attribute the collective action, and uprising, to the drought because farmers devised a temporal adaptive capacity for this "natural disaster." Furthermore, grievance, alone, does not explain how or why certain provinces protested preemptively.

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## 5. What is the backstory?

### 5.1 *Protesting in Dara'a: RM and NSM*

The initial quantitative portion of this research highlighted the weakness of the water scarcity narrative in light of quantitative research. In what follows, I seek to fill the explanatory gap by integrating the qualitative evidence regarding social mobilization. As noted, collective action can be explained through three prominent lenses: the New Social Movement Theory (NSM), Resource Mobilization Theory (RM) and social constructionism (SC). The first two frameworks further investigate the structure and organization of the society, whereas, SC emphasizes the grievance narrative when addressing collective action. Therefore, I contend that the combination of the NSM and RM theory is more applicable than the individual grievance narrative when analyzing the outbreak of conflict in Dara'a.

If it were solely a grievance motivated rebellion, with reference to water scarcity and agricultural production, then Syria would have experienced several outbreaks of violence throughout the past two decades. The 1997-1998 drought would have been ripe for an uprising- the quantitative data illustrated that agricultural production throughout all the Farming Systems was significantly lowered due to the apparent water shortage. With reference to the 2006 drought, one would expect a more dependent agricultural region, such as FS3, would have revolted prior to a smaller region like Dara'a. Hence, the grievance narrative tends to be limited. There ought to be a more widespread narrative that helps explain the intricacies of a water-stressed socio-political situation.

The combination of NSM and RM presents a persuasive narrative. The foundation for social mobilization is a crucial factor in explaining why the people of Dara'a protested prior to the other regions. Historically, Dara'a, a governorate in FS5, benefited from the

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agricultural reforms of the 1990s, arguably more so than other regions. Rural residents of Dara'a found themselves rising in the socio-political ladder. Many Dara'awis "managed to obtain high-ranking positions in the government, the civil service, the Ba'ath party, the military, and security forces and intelligence"(Leenders, 2012a). Leenders (2012a) contends that nearly 90% of the Sunni officials are composed of Dara'awis. Dara'awis have consistently proved their allegiance to the regime. For instance, in the 1980s, the clan leaders in Dara'a gathered forces to help suppress the outbreak of conflict in Hama (Ibid, 2012a). Many Dara'awis, therefore, aided the suppression of a previously well-known uprising. Overall, Dara'a's continued support of the government led the regime into perceiving the region as an ally. This perception of Dara'a's unwavering allegiance meant that there were fewer security forces overlooking the citizen's daily lives prior to the civil war, which gave them the grounds to build their social capital. A question, then arises from this: Insofar as Dara'a appeared to be a strong ally to the regime, then why did protests initially erupt in the province?

### 5.1.1 Social and Financial Capital

Social capital, the "actual or potential resources which are linked to possession of a durable network" plays a crucial role in the mobilization of people (Bourdieu 1986, p.87). According to Baczko (2018), the "revolutionary social capital" acts as an integral resource for "the individual agent" and "the mobilization process." Compared to other provinces, Dara'a had the necessary precursors for collective action. It is important to discuss the nuances of Dara'a's social capital, which stems from its infamous tie to tribalism. The governorate as a whole tends to be defined by its clan structure; and while there are no distinct tribes, the area is dictated by clans. There are seven clans that dominate the inner structure of Dara'a: the Abu Zeids, the Zu'bis, the Hariris, the Masalmas, the Muqdads, the Jawabras, and the Mahamids (Leenders, 2012b). The social network within

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Dara'a thrives, as the clans "provide a major source of solidarity, identity and socio-economic coping or survival" (Leenders 2012b, p.144). Both ideological and financial dependency on the clan is quite common. The influential "clan-based network" extends to various aspects including "labor migration networks, cross-border networks, or extra-legal networks," providing a sense of security in the financial domains (Leenders, 2012b, ). A wave of loyalty encompasses the region, which allowed for the structural opportunity for social mobilization. Intertwining NSM and RM into this narrative, it is apparent that the organization of the regional territory fostered the social and political opportunity for an uprising.

The network also establishes a platform for the dissemination of information. Collective action and social mobilization, therefore, becomes associated with the transfer of information through word of mouth. When the school children were arrested in February 2011, an immediate reaction occurred by the Dara'awis. The strong "bonds and connections among families led to demonstrations and protest on behalf of arrested youths" (Cavallo 2012, p.50). The arrest of the young boys was not an isolated event.

The repressive regime has constantly suppressed challengers throughout all regional farming systems. Unlike other regions, Dara'awis responded with collective action to help "foster the notion that dissent and opposition should be given an outlet" (Cavallo 2012, p. 69). Moreover, Leenders (2013, p.278) contends that the clan structure provides "strong values for a social loss of local conflict management and dispute settlement based on notions of justice and dignity."

The incentive, therefore, behind the protests was not necessarily due to the drought. Instead, Dara'a's organizational structure created an interlinkedness between the residents which drove them to the streets to object incarceration of the young boys. In other words, it is not the individual grievance that sparks mobilization, but rather the shared grievance among a cohesive group (Snow and Soule, 2010). In essence, the violence was portrayed

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as “an insult to their [ Dara’awis] values embedded in clan networks” (Leenders 2013, p. 279). Therefore, the social pressure of the clan led regime loyalists “to either join the movement or at least not to oppose it” (Leenders 2013, p.279).

This is a pivoting moment, which implies that the loyalists prioritize the clan network over submission to the government. It is important to note that Dara’a’s *meso* level of organization was not the exclusive determining factor in explaining the motives behind the Dara’a protest. Instead, it merely provides an additional lens to unravel the nuances behind the uprising. Furthermore, the social network that Dara’awis established, extended to neighboring countries. Bordering Jordan, Dara’awis seized the advantage of creating a strong relationship with the neighboring cities, such as al Ramtha and Irbid (Leenders, 2013). Dara’a’s strategic location, settling near the Nassib-Jaber border, has economically aided the Dara’awis with diffusing their agricultural production to various foreign markets. The Nassib-Jaber border is a “key link in regional trade routes linking Syria to the Gulf Countries” (Bekkers 2017, p.12). The aforementioned border ultimately provided Dara’awis with a source of income. This extends beyond agricultural production. Many benefited from this strategic location, including truck drivers, merchants, etc (Bekkers, 2017). The Nassib-Jaber border proves to be a gravitational point in this narrative. This self-built network gave them the ability to withstand governmental pressures. FS5, therefore, did not revolt because of the water scarcity grievance narrative, albeit it may appear so. In fact, it was the financial and social capital, prompting them to take a risk and oppose the government. The social capital and the incarceration of the young boys provided the incentive, whilst the financial capital provided the ability to challenge the government.

The cohesive clan network, therefore, proves to be essential when analyzing the hidden factors behind the Syrian protests. The organizational structure of the civil society “supplied key skills and resources for mobilization to be effective and to be

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sustained under prohibitive conditions” (Leenders, 2013). Both the internal and external linkages established the platform for collective action, but it also allowed the uprising to persist for as long as it has. Clan members would smuggle out footages of the protest through the Nassib-Jaber border, while smuggling in “Thuraya satellite phones in anticipation of the regime shutting down local communications’ networks” (Leenders 2013, p.281). Dara’a’s social and financial capital, within the social movement paradigm, present a more compelling narrative than the water scarcity argument. Through the collectively established structure, Dara’awis found themselves unhinged over the repressive governmental arrests, stimulating a need for resistance.

### 5.2 Lack of Social Capital

Dara’a’s social mobilization was dictated by its strength in terms of social capital. In order to enhance this argument, it is imperative to draw upon other Farming Systems and analyze their social organization. Insofar as RM is truly a crucial factor in understanding the outbreak of conflict, then one would expect that the other Farming Systems either lacked completely the ability to mobilize or merely did not the comparative amount of social capital to join the ranks of early risers, like the Dara’awis. This section will shed light on the other Farming Systems and their organization and strategy. It is beyond the scope of this paper to discuss every province. This is in itself an important topic requiring further research. Therefore, three provinces will be thoroughly discussed, specifically as they represent compelling similarities and differences with Dara’a.

#### 5.2.1 - Hama- FS4

Hama, situated in FS4, has endured a painful historical event. In the past, Hama manifested into the Syrian Muslim Brotherhood’s (SMB) hub. SMB acted much like the basis for the civil society in Hama. It challenged the regime and called for an uprising. To

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say the least, the tension between the Sunni Syrian Muslims Brotherhood and the Ba'athist regime was quite prominent. SMB had been opposing the regime since the rise of the Ba'athist party in the 1960s (Lefevre, 2014). In 1982, SMB "were planning an uprising in the city for later that year" (Conduit 2016, p.213). In order to demonstrate the regime's dominance, in February 1982, the late president Hafez Assad, pre-emptively decimated the city (Lefevre 2014). The Hama massacre was one of the worst recorded in that era. Harboring the Syrian Brotherhood, Hama succumbed to the violence and terror that the late Hafez Assad bestowed on the city. The aim was to suppress the Islamists in the country and annihilate dissenters. SMB did not go down without a fight. The opposition "rose up against the regime, seized government buildings, and had declared the city 'liberated' by morning" (Conduit 2016, p.214). In retaliation, the military forces "besieged the city for three weeks with a level of brutality unprecedented in contemporary Syria" (Conduit 2016, p.214). The estimated casualty number ranges from the lower end of the spectrum of 3,000 to the higher end of 40,000 civilians (Wiedl, 2006). The massacre of Hama lives in infamy.

This is a pivotal point in understanding why Hama did not precede Dara'a in the uprising. The decimation of the city the 1980s left the city vulnerable and hesitant to rise against the regime, for a fear of another massacre. The horrors of the massacre echo to this day. Unlike other regions, "Hama did not directly take root, even after the collective action in Daraa and Homs" occurred (Cavallo 2012, p.104). In fact, it was not till April 22, 2011, that Hama experienced widespread protests, nearly a month after Dara'a (Ibid, 2012). One cannot assume that Hama did not possess social capital, but rather it was suppressed decades prior. The massacre did not, in fact, hinder Hamawis ability to mobilize, but it did slow down the process. Where Dara'a relied on its inner clan structure, Hama depended on social gatherings at the mosque. Macleod and Flamand (2011) argue that collective action was spurred through conversations at the mosque. "Participants of collective

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protest have commonly cited that they were recruited through mosques” (Cavallo 2012, p. 106). The recruitment of people was contingent on the mosque’s ability to disseminate information in a timely and cautiously manner (Macleod and Flamand, 2011).

Social capital, therefore, was present in Hama. Yet, there was a hesitancy to act upon it. Dara’a, on the other hand, did not experience a rebellion in the 1980s, and rather fought alongside the government to suppress the uprising. This period and alliance to the government allowed Dara’a’s social networks to flourish, while Hama’s opposition to the government fractured its social network. Furthermore, the formation of a rebellion is contingent on the social mobilization, and collectively determined action. The *meso*-level of organization in Hama was weakened by the massacre, which explains why Hama failed to be an early riser.

### 5.2.2- Deir Ezzor -FS3

Many parallels can be drawn between FS5, Dara’a, and FS3, Deir Ezzor. The mass demonstrations in both regions occurred due to the socially fabricated organizational structure of the region. Nonetheless, Dara’a’s social network was more tenacious compared to FS3, allowing for an earlier outbreak of conflict. Deir Ezzor notably mobilized shortly after Dara’a. Leenders (2012b) contends that “Dara’a, Homs, Idlib, and Deir Ezzor... suffered about 70 percent of total reported deaths, while their share of the country’s total population does not exceed 21 percent.” Deir Ezzor, much like Dara’a, had a strong “clan like form of social organization” (Leenders 2012b, p.149). In fact, Khalid al-Khalaf, a prominent leader in the “Saddah al-Bakara tribe, one of the largest tribes” in Deir Ezzor publicly supported the uprising that had spread in the country (Leenders, 2012b). Leaders of the tribes invoked sentiments about how “loyalty to clan often supersedes allegiance to country” (Sands, 2011). However, Dara’a’s rebellion was

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contingent on other elements besides the clan structure. The social networks that extended beyond the borders signified a crucial element in the collective mobilization of the society. Deir Ezzor, controversially, did not achieve a higher social network that extended beyond the clan structure. While Deir Ezzor did foster a social network among the residents, it was weak compared to that of Dara'a.

Drawing upon earlier conclusions, it is arguable that the protests did not spread, but rather the different governorates "drew on the mechanisms and resources associated with and generated by social networks variably built around clans" (Leenders 2013, p.282 ). In other words, the protests occurred parallel to each other with a staggered start depending on the intricacies of the social networks. The onset of the uprising, therefore, becomes more entangled in the ability of the society to mobilize, rather than the individual grievance of the drought. Albeit FS3, and specifically Deir Ezzor, was dependent on agricultural production, the drought was not a citing factor for why the region protested.

Deir Ezzor constitutes as one of "Syria's poorest province" (Al-Tamimi, 2012). The opportunity cost to engage in a rebellion is lower for those with lower education levels (Collier and Hoeffler, 2004). Although this narrative is prominent, it does not explain the succession of which provinces rebelled first. Additionally, the grievance narrative does not illustrate why certain regions protested prior to others. If the drought was truly an instigator then logically FS3 would have been the first riser, instead of Dara'a. However, this did not occur. Deir Ezzor, drawing upon the same structural organization, lagged behind Dara'a, due to its social capital. The lesson to be drawn from here is that the amount of social capital can be loosely correlated to when each province rebelled.

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### 5.2.3- Lattakia- FS1

Unlike the aforementioned regions, the social capital that is fostered within Lattakia is strongly interlinked with the Assad regime. Lattakia remains a stronghold of the Alawite community (Kaplan, 1993). According to Pipes (1989, p.430), nearly “three-quarters of the Syrian Alawis live in Latakia... where they make up almost two-thirds of the population.” Nevertheless, Lattakia was not always the hub for the Assad regime. The late Hafez Assad resided in a small village called Qurdaha, where he was known as the son of ‘Ali Sulayman (Seale, 1988). His father sent Hafez to Latakia to receive a proper education; by the age of sixteen, Hafez “joined the Ba’ath” (Seale, 1988). By 1949, “the whole Assad family moved down from Qurdaha to Latakia” (Seale 1988, p.11). Hafez soon rose the ranks within the military and witnessed the radical changes in which the Ba’athist regime replaced the old functioning order in the 1960s (Seale, 1988). Overall, Lattakia is dictated by the inner structures of the Alawite minority. “The socio-economic changes that have taken place in Syria, tribal leaders and *shaykhs* have been able to retain a certain measure of control” (Faksh 1984, p.137). This implies that the social networks that are prevalent would have inhibited the region from protesting first.

If one applies the RM theory to this region, one would find that the organization of the society is quite important in understanding how people mobilize. The pre-emptive collective action would not have occurred in Lattakia due to the complex connections established by the regime in the governorate. Opposition was minimal in the region because many relied upon the Assad regime to act as a protectorate for them. The sentiment was ubiquitous among residents in this province.

The similarities and differences highlighted between FS1, FS3, FS4 and FS5 revealed an interesting parallel. The provinces that were among the early risers and developed a complex system of social networks, such as Dara’a. While Dara’a networks established a

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rebellion, the opposite occurred in Lattakia, where the networks, established by the Asad regime, suppressed the need for an uprising. With this in mind, the social capital established by the society, will either hinder or enable its ability to protest. Moreover, social mobilization is contingent on the society's social capital, and more importantly social networks.

## **6. Integrating the Water Scarcity narrative with Resource Mobilization Theory**

The linkage between water scarcity and conflict is contentious at best. Due to climate change, indeed, there will be environmental scarcity, perhaps even water shortages; and over the next few decades, "new constraints will be placed on water supplies available for irrigation as well as for rainfed agriculture" (Rosegrant 2009, p.207). However, water scarcity, alone, does not lead to conflict. The individual grievance is not substantial enough to mobilize members of society. There ought to be a series of networks intertwined, providing the platform for an uprising. Academics who have argued in favor of this water scarcity narrative, often overlook substantial elements of an uprising. A drought is merely a facade, and should not be considered as a leading instigator for a rebellion. Syria is a prime example to test this thesis. On the surface, it may appear that the 2006 drought initiated individual grievances, and therefore ignited a rebellion in Dara'a in 2011. However, this is too narrowly focused and becomes a bit speculative. The quantitative portion of this dissertation demonstrated the weaknesses in the water scarcity narrative. Syria has repeatedly confronted water shortages, such as the 1998 drought. On average, FS1, FS2, FS3, FS4, FS5 respectively saw a 16.8%, 41.7%, 54.09%, 28.02% and 65.17% decrease in total annual rainfall in 1998. Yet, the previous drought did provoke an uprising.

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Secondly, the areas most dependent on agricultural production, FS3, were not the first risers. FS3 was nearly twenty times the size of FS5. In the years, between 2006 and 2011, FS5's irrigated land increased from 33,876 hectares to 42,875. On the other hand, FS3 saw a reduction from 769,601 hectares to 741,194. The applicability of the water scarcity narrative becomes lessened due to this data. With the apparent reduction of agricultural production, FS3 should have protested prior to Dara'a. Nonetheless, it was Dara'a, a region known for its clan structure and immaculate structure, that mobilized first.

The integration of the Resource Mobilization theory is necessary to provide a more accurate depiction of what really occurred in Syria. The ability to mobilize and collectively take action is contingent on a society's networks. This is often an underestimated factor when analyzing civil wars. The water scarcity narrative derives from an individual grievance perspective - whilst, RM extends from the social networks established. Social media, the domino effect from the Arab Spring, and the government's repressive policies are extremely important in understanding how the protests spread and were sustained across the country. Nevertheless, the capability to mobilize, in the first place, explains why conflict erupted in Dara'a first. Unlike other provinces, Dara'a fostered unprecedented networks in the city itself, in addition to the neighboring countries. The loyalty within the province was based on the clan structure, not the ruling regime. Overall, the social capital present explains why Dara'a protested first. Other provinces may have developed social networks, yet the ties were not as strong. The order in which provinces protested may be associated with the amount of social capital accumulated.

RM is not aimed to replace any prominent theories about the cause behind the civil war, rather it provides an additional layer of analysis that may provide a more cohesive picture of what really occurred in Syria. This dissertation merely demonstrated the weakness of the water scarcity narrative; then, elaborated on the importance of understanding social networks and the linkage to conflict. The aim was not to isolate or determine the sole

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cause of the civil war. Instead, this dissertation aimed to incorporate the social mobilization theory into the water scarcity narrative. As it stands alone, the linkage between the 2006 drought and the 2011 civil war fails at explaining why certain governorates mobilized sooner than others. Attributing the civil war to the drought overlooks the socio-economic situation and simplifies the causation behind the uprising.

Further research ought to be conducted about the linkage between water scarcity, drought, agricultural production and social mobilization in other countries. It would be empirically intriguing to see the similarities and differences between Syria and other water-stressed nations.

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