

Climate Change and Violent Extremism in North Africa

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Introduction

As climate change intensifies in many parts of the world, more and more policymakers are concerned with its effects on human security and violence. From Lake Chad to the Philippines, including Afghanistan and Syria, some violent extremist (VE) groups such as Boko Haram and the Islamic State exploit crises and conflicts resulting from environmental stress to recruit more followers, expand their influence and even gain territorial control. In such cases, climate change may be described as a “risk multiplier” that exacerbates a number of conflict drivers.

Against this backdrop, this case study looks at the relationship between climate change and violent extremism in North Africa, and more specifically the Maghreb countries Algeria, Morocco and Tunisia, which are all affected by climate change and violent extremism. There are three justifications for this thematic and geographical focus. Firstly, these countries are affected by climate change in multiple ways: water scarcity, temperature variations and desertification are only a few examples of the numerous cross-border impacts of climate change in this region. Secondly, these three countries have been and remain affected by the activity of violent extremist groups such as Al Qaeda in the Islamic Maghreb (AQIM), the Islamic State organisation (IS) and their respective affiliated groups. Algeria endured a civil war from 1991 to 2002 in which Islamist groups opposed the government, while Morocco and Tunisia have been the targets of multiple terrorist attacks by jihadist individuals and organisations. Thirdly, the connection between climate change and violent extremism has received much less attention in the literature than other climate-related security risks.

Although empirical research has not evidenced a direct relationship between climate change and violent extremism, there is a need to examine the ways they may feed each other or least intersect in the context of North African countries. Hence, this study concentrates on the ways violent extremism can reinforce vulnerability to the effects of climate change and on the potential effects of climate change on vulnerability to violent extremism. While most of the existing research on the interplay between climate change and violent extremism concentrates on terrorist organisations (Asaka, 2021; Nett and Rüttinger, 2016; Renard, 2008), this case study focuses on the conditions, drivers and patterns that can lead individuals to join such groups in North Africa. In other words, it looks at the way climate change can exacerbate a series of factors that are believed to lead to violent radicalisation – “a personal process in which individuals adopt extreme political, social, and/or religious ideals and aspirations, and where the attainment of particular goals justifies the use of indiscriminate violence” (Wilner and Dubouloz, 2010: 38). This approach is needed not only to anticipate how climate change could possibly affect violent extremism in the medium and long run but also to determine whether and how the policy responses to both phenomena should intersect in the near future. Does climate change affect the patterns of violent extremism in North Africa? If so, how do these phenomena interact in this region?

To answer these questions, the case study paper first gives an overview of the threat posed by violent extremism in the countries of study and examines the drivers and factors that are believed to lead to violent extremism in North Africa. Secondly, it discusses how these drivers could be affected by the effects of climate change on resources, livelihoods, mobility and other factors. Finally, an attempt is made to understand the possible interactions between climate change and violent extremism in the future and the implications for policymaking.

I. Violent Extremism in Maghreb Countries

Violent extremism is a phenomenon that affects all Maghreb countries. Algeria, Morocco and Tunisia have been and remain the target of three kinds of VE. Firstly, transnational terrorist organisations such as Al Qaeda and IS, which focus on “global jihad” (i.e., war on the West), have perpetrated and inspired several terrorist attacks in the region. Secondly, there is domestic terrorism by local groups, such as the Moroccan Islamic Combatant Group, the Algerian Salafist Group for Preaching and Combat and Ansar al Sharia in Tunisia. These groups mostly fight against national governments, whose regimes are accused of being corrupt, anti-Islamic in their essence and allied with “the infidels”, or in other words, foreign powers. Several dozen terrorist attacks have been perpetrated by local groups in this region. Thirdly, there is the foreign fighters phenomenon, whereby individuals travel to Libya, Syria and Iraq to join violent extremist groups. This has significantly affected the region, as up to 8,000 individuals – 20% of the total number of foreign fighters flocking to Syria and Iraq to join IS – came from the Maghreb (The Soufan Group, 2015). There are fears that some may attempt to return to their homeland to perpetrate terrorist attacks (Renard, 2019).

In this section, some contextual information is given on the extent to which violent extremism represents a threat to each of these countries.

A. Violent Extremism in Algeria

Of the three Maghreb countries, Algeria is certainly the most exposed to the activity of VE groups (Gaub, 2015). Although the number and pace of attacks perpetrated by violent extremist groups has decreased since the early 2000s, the terrorist threat level in Algeria is still relatively high. Surrounded by countries that experienced the wave of uprisings initiated in 2011 (Morocco and Tunisia) and/or foreign interventions (Libya and Mali), the Algerian security forces have conducted several counterterrorism operations and bolstered their presence on the country’s borders with Libya, Mali and Tunisia – where jihadist groups such as AQIM and IS affiliates are still active. AQIM, for example, expanded its territorial presence in northern Mali after the state collapsed in 2012 and benefitted from arms flows from Libya during the same period (Arieff, 2013). The most-recent large-scale terrorist attack in the country was against a British Petroleum gas complex near In Amenas in January 2013. Perpetrated by the Those Who Sign in Blood Brigade, a jihadist terrorist faction that split from AQIM and is operating in Algeria and Mali, it claimed the lives of 39 foreign hostages. IS, meanwhile, has claimed responsibility for the assassination of French mountain guide Hervé Gourdel (September 2014) and of several Army soldiers since 2014. Regular clashes between the army and violent extremists result in the death of several dozens of people every year in the country. Although terrorist cells affiliated to AQIM and IS’s Algerian branch (including *Jund al-Khilafah*) remain on Algerian soil and claim responsibility for several clashes with the army, they are put under significant pressure by the frequent counterterrorism raids carried out by Algerian security forces. Despite this, Algeria has not been as affected as its Moroccan and Tunisian neighbours by the foreign fighters phenomenon. While it is hard to find the exact figures, mixed governmental and non-governmental sources indicate that 170 Algerian citizens have left their country to join IS in Syria and Iraq (Barrett, 2017). As we shall see below, this phenomenon reached different proportions in Morocco and Tunisia.

B. Violent Extremism in Morocco

Violent extremism represents a threat for Morocco, even though its patterns and manifestations are different from the Algerian context. Since the attacks on the Atlas-Asni Hotel in Marrakesh (August 2004) that killed two people, Morocco has been the target of three other terrorist attacks. First came the Casablanca attacks (May 2003), which killed 33 people and injured over 100. They were perpetrated by 14 youngsters from the poor neighbourhood of Sidi Moumen (Casablanca) who were inspired by Al Qaeda and other radical groups. Second was the 2011 terrorist attack that killed 17 people in Jemaa el-Fna square in Marrakesh, which were carried out by two Al Qaeda sympathisers. Finally, IS sympathisers beheaded two tourists from Denmark and Norway in the Atlas Mountains in December 2018.

Despite the relatively low number of terrorist attacks, the threat posed by VE groups in Morocco is real. Following the rise of IS in Syria and Iraq, Moroccan security and intelligence agencies have dismantled over 60 terrorist cells in the country. Morocco is also amongst the Arab countries most affected by the foreign fighters phenomenon. According to The Soufan Group (2015), more than 1,500 Moroccans travelled to Syria and Iraq to join the ranks of groups linked to Al Qaeda and IS. At least 300 are also believed to have travelled to Libya to join the Libyan branch of IS as of 2015 (Masbah, 2015).

C. Violent Extremism in Tunisia

Despite being the only success story of the 2011 Arab uprisings, Tunisia has turned into a battleground for violent extremist groups. While the country is still undergoing its democratic transition, the threat posed by jihadist groups has become a major source of concern.

In the past decade, several violent extremist groups have posed considerable security challenges to Tunisian authorities. Firstly, Ansar al Sharia, an Islamist group preaching the Islamicisation of society, has participated in several violent incidents (e.g., an attack on the US embassy in Tunis in September 2012) and was accused of involvement into the political assassination of two high-profile figures – Chokri Belaïd and Mohammed Brahmi – in February and July 2013. The group was banned by the authorities in August 2013. Since then, two main violent extremist groups have gained traction in Tunisia: on the one hand, the Uqba Bin Nafaa brigade, an Al Qaeda-affiliated branch which mainly operates on the Algeria–Tunisia borders. Between 2013 and 2016, the Tunisian Ministry of Interior claims to have dismantled over 673 terrorist cells located near the border. On the other hand, IS, which has consolidated its presence in Libya since 2014, reached out to Salafi jihadist sympathisers in Tunisia and planned a terror campaign from Libyan territory.

As a result, Tunisia has been the target of a large number of terrorist attacks. In 2015 alone, 17 terrorist acts took place in the country. Terrorist attacks include regular clashes with the army and police forces (for instance at the Algeria–Tunisia border), but also large-scale attacks against tourist sites and political targets such as the Bardo National Museum attack (March 2015) which killed 22 people and injured over 50; the Sousse attacks (2015) that killed 38 and left 39 people wounded; and the attack on the Tunisian presidential guard (November 2015) in which 12 members of the security forces died. Finally, it is worth mentioning the attempt to take a Tunisian city in March 2016, when about 100 IS fighters carried out large-scale attacks to take Ben Gardane, a coastal town in south-eastern Tunisia close to the Libyan border. Between March 7th and 9th 2016, 55 IS militants, 13 security forces personnel and seven civilians died in this unprecedented, large-scale assault.

Tunisia is also notorious for being the main provider of foreign fighters to Syria and Iraq between 2011 and 2015. Depending on the estimate, between 3,000 and 6,000 Tunisians are believed to have left Tunisia to join violent extremist groups such as IS (The Soufan Group, 2015). It is assumed that Tunisia has the highest ratio of foreign fighters per capita in the world. Furthermore, between 1,000 and 1,500 Tunisians are believed to have joined violent extremist groups in Libya, while the authorities claimed to have prevented 27,000 Tunisians from joining terrorist groups in Libya, Iraq and Syria (Zelin, 2018a, 2018b).

The map below offers an overview of some of the groups present in North African countries:

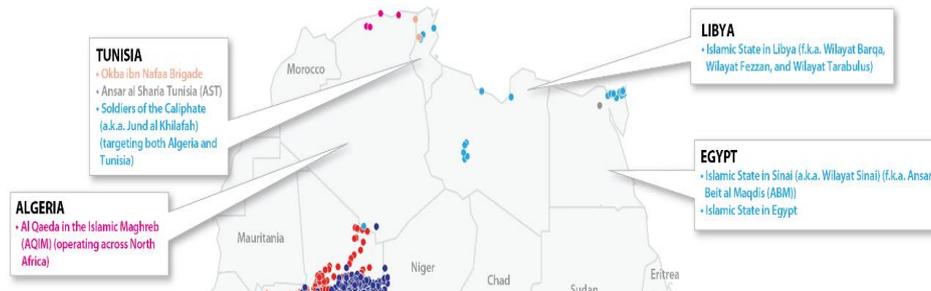


Figure 1. Presence of jihadist groups in North Africa in 2021. Source: Africa Center for Strategic Studies (2021).

To sum up, Algeria, Morocco and Tunisia face multifaced transnational and domestic threats. Several violent extremist groups, networks and organisations are present in each of these countries (e.g. AQIM, IS), but the threat goes beyond the terrorist activities of such groups. Indeed, it includes lone individuals willing to commit terrorist attacks in the name of one of these organisations; individuals convicted of terrorist offences who may be released; and returning foreign fighters – who amount to several thousand in the region. Finally, two aspects of this threat are relevant for this case study: on the one hand, the threat has a strong transnational component, in both physical and virtual terms. Physically, terrorist groups are not restricted to single countries, but move from one territory to another on a regular basis. For instance, jihadists regularly move between Mali, Algeria, Niger, Libya and Tunisia. Certain geographical features (Sahara Desert, mountains) make it hard to systematically spot or prevent such movements. On the other hand, jihadist groups may pursue an agenda that is both local and regional. In this context, a terrorist-related development in one country may have an impact on the level of terrorist threat in neighbouring countries. For instance, the wars in Mali and Libya have had clear spill-over effects on Algeria, Tunisia and Sahelian countries.

With a view to assessing the possible impacts of climate change on violent extremism, the next section concentrates on the drivers of violent extremism in these countries.

II. Drivers of Violent Radicalisation in North Africa

A small but growing body of the literature on climate change has focused on the interplay between climate change and terrorism (Asaka, 2021; Nett and Rüttinger, 2016; Renard, 2008; Telford, 2020). This strand of research mostly looks at the effects of climate change on already established terrorist groups and organisations. While this approach insists on the way climate change can affect the level of terrorist threat and/or militancy, only a few studies look at its possible effects on individuals who may be tempted to join violent extremist groups (King, 2015; Nett and Rüttinger, 2016; Walch, 2018). Instead of focusing on the potential interactions between climate change and terrorist organisations, this case study looks at the issue from another perspective: that of the potential interactions between climate change and the drivers and conditions that are believed to lead to terrorism and violent extremism. In other words, how could climate change affect the patterns of violent radicalisation? First, it will be useful to explain the conceptual framework used to understand violent radicalisation, before reviewing the main patterns of violent radicalisation in Maghreb countries.

A. Conceptual Framework for Understanding Violent Radicalisation

The patterns of violent radicalisation and the drivers of violent extremism in North Africa have received considerable attention in the past few years (Bagchi and Paul, 2018; Joffe, 2012; Pargeter, 2009; Vidino, 2018). The increase in the number of homegrown terrorist attacks, the rise of IS in Syria, Iraq and Libya and the subsequent foreign fighters phenomenon are amongst the main elements behind this trend. While the key question “What drives people into the hands of violent extremist groups?” remains the object of intense scholarly debate, the concept of violent radicalisation can help provide clues about violent extremism in specific contexts. It concerns the idea that people do not become terrorists overnight: rather, they undergo a series of events, experiences and circumstances that eventually lead them to use or justify the use of violence for ideological, political or social goals. This chain of events, experiences and circumstances is often referred to as the “process of violent radicalisation”.

While several models have been developed to explain and visualise the radicalisation process (Borum, 2011; McCauley and Moskalenko, 2008, 2017; Moghaddam, 2005; Wiktorowicz, 2002), it is impossible to establish causal relationships between certain drivers, factors and conditions and the process of radicalisation itself. The fact that we cannot definitively answer the question “what makes someone embrace violent extremist views and behaviour?” is the reason the concept of violent radicalisation has been the subject of major criticism (Heath-Kelly, 2013; Kundnani, 2009; Neumann, 2013; Schmid, 2013).

Despite the lack of consensus on the drivers of violent radicalisation, certain factors and dynamics recur in accounts of the processes leading to violent extremism. In this regard, Peter R. Neumann (2017: 11) considers that five factors and dynamics help to identify a process of violent radicalisation:

1. The existence of *grievances* such as conflicts, exclusion, dynamics of segregation and discrimination or the feeling of injustice;
2. Individual *needs* such as the search for belonging, the desire for adventure or power, the need to be part of a community or project;
3. The adoption of a radical *ideology* to the extent that ideology provides an explanation for (real or perceived) grievances and makes legitimate the use of violence as a solution to these grievances;
4. The *role played by people* and social networks (recruiters, leaders, friends, peer groups, or family members) as radicalising agents; and
5. The *use of violence*.

This approach to violent extremism is particularly relevant for our case study as it helps to shed light on potential drivers of violent extremism, in other words, the factors that feed the existence of grievances and create or exacerbate certain needs. The process of radicalisation can occur at one or several of the following three levels (Schmid, 2013):

- a. *Micro-level*: corresponds to the individual person and involves feelings of alienation, marginalization, discrimination, relative deprivation, humiliation and rejection among others;
- b. *Meso-level*: includes communities and groups and relates to the supportive social surroundings or broader radical milieu;
- c. *Macro-level*: includes the roles of government (including its foreign policy), society (e.g., public opinion), socioeconomic opportunities, and majority–minority dynamics, among other elements.

These levels are often connected when the process of violent radicalisation occurs. For instance, foreign interventions in Libya (macro-level) may lead certain groups to use violence for political gains (meso-level) and eventually convince an individual to join the fight (micro-level). In the framework of this case study, the possible interplay between drivers of violent radicalisation at these three levels will be borne in mind, but the principal focus will be on the macro-level drivers of radicalisation, as the possibility of identifying how they may be influenced by climate change seems likely to be easier than for the micro- and meso-level drivers.

B. The Drivers of Violent Radicalisation in the Maghreb Countries

A study carried out for the United Nations Office of Counter-Terrorism described the typical profile of foreign fighters who travelled to Syria and Iraq between 2012 and 2016 as “most likely to be male, young and disadvantaged economically, educationally, and in terms of the labour market. [They are] also more likely to come from a marginalized background, both socially and politically. Most were unemployed, or underemployed, and/or said that their life lacked meaning” (El Said and Barrett, 2017: 40). Does that imply that education, political and social marginalisation and unemployment are the main drivers behind violent radicalisation in North Africa? Drawing on the literature on violent extremism in Middle Eastern and North African countries, this section focuses on the two

main types of factor that account for violent extremism in Maghreb countries: (1) political drivers related to authoritarianism and conflict and (2) socioeconomic drivers of violent radicalisation.

I. Authoritarianism and conflict as political drivers of radicalisation

In the Maghreb region and its surroundings, there are two main features which help to understand a wide series of political drivers of radicalisation: on the one hand, the historically authoritarian nature of the Algerian, Moroccan and Tunisian regimes since their independence; and on the other, the proliferation of conflicts in the post-2011 era (i.e., Arab uprisings).

Authoritarianism and political radicalisation

The existence of a correlation between authoritarianism and political radicalisation is frequently assumed when trying to explain the patterns of violent radicalisation in the MENA region (Boukhars, 2011; Harrigan and El Said, 2011; Pargeter, 2009; Storm, 2009). The main argument used is that, unlike democracies, authoritarian regimes do not have the capacity (or willingness) to channel the grievances expressed by citizens. Besides this, the use of political repression combined with restrictions on freedom and civil liberty and their lack of legitimacy are assumed to legitimise support for radical groups – including violent extremist groups – against authoritarian rulers. In the words of Anouar Boukhars (2011: 34) “Perceptions of the unfairness of the political system and its inability to address socioeconomic disparities aggravate social tensions, prompting repressive responses from the state, which, in turn, fuel opposition violence”.

This applies to North African countries, where the vicious cycle of repression and radicalisation has taken place both before and since the 2011 uprisings. In Algeria, the civil war broke out after the government cancelled the parliamentary elections and banned the Islamist party FIS – which was on the verge of winning the elections and defeating the ruling National Liberation Front (FLN). The “Black Decade” brought the government into conflict with Islamist rebel groups and resulted in the death of over 200,000 Algerians. In Egypt, the correlation between authoritarianism and violent extremism has also been in evidence on many occasions (Awad and Hashem, 2015). Since the coup d’état against democratically elected President Mohamed Morsi (Islamist Freedom and Justice Party), the country has witnessed a surge of violent extremist attacks targeting the authorities. Around 700 terrorist attacks were perpetrated in 2015, making the post-coup d’état era the deadliest insurgency in Egypt’s history (Awad and Hashem, 2015). Finally, one of the most telling examples is that of post-2011 Tunisia. In this country, the unprecedented rise of Salafism (including jihadist Salafism) has been interpreted as a consequence of “the unavoidable letting-out of pent-up frustrations after years of repression” that targeted Tunisians at large and specifically Islamist militants (International Crisis Group, 2013).

The scholarly literature has highlighted other types of drivers of radicalisation that directly or indirectly result from authoritarianism. Among the often-cited drivers are historical antagonisms; the impact of authoritarian rule in terms of human rights violations; international relations involving Muslim-majority countries; and state responses to terrorism.

In terms of historical antagonisms, Pargeter (2009) has shown that certain regions of North African countries that previously rebelled against colonial power and/or the central authorities are receptive to radical ideologies. Such is the case of eastern Libya, which was historically opposed to Gaddafi, suffered from state repression for several decades and

provided a fertile ground for jihadist groups to thrive (Wehrey and Boukhars, 2019). Likewise, historical antagonisms between certain Amazigh populations and the Moroccan state are considered a driver of violent radicalisation amongst Amazigh populations in Morocco (Mouna et al., 2020).

Human rights violations are another aspect of the “repression–violent radicalisation” vicious circle that has been studied in the North African context. Drawing on data from Maghreb countries, Storm (2009: 1011) has shown that the combination of state repression and human rights abuses “has resulted in many North Africans becoming radicalised”. In many instances, those human rights violations – along with the lack of civil and political rights – are being exploited by jihadist groups in their propaganda. These abuses are often depicted as the ultimate proof of the so-called war on Islam waged by the West against Muslim countries: they are cited in the jihadist propaganda material as evidence that authoritarian regimes in Muslim countries are siding with the West in the framework of the “global war against Islam”; a war in which they actively participate through their multiple economic, political and strategic alliances with “Western enemies” (Burgat, 2008; Githens-Mazer, 2009).

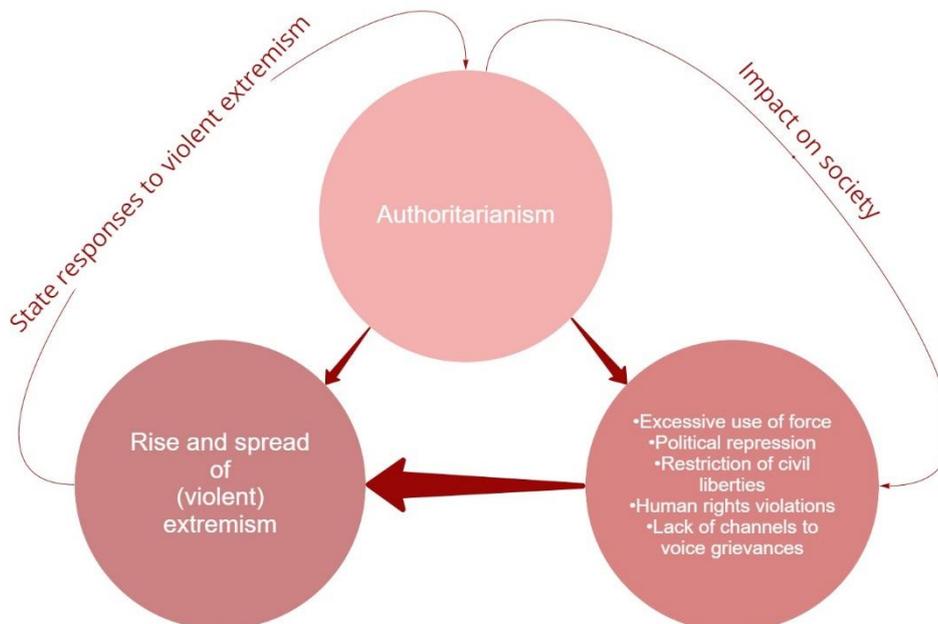


Figure 2. The vicious circle of authoritarianism, repression and violent radicalisation.
Source: author (2021).

Conflict and political radicalisation

Along the same lines, conflicts and foreign interventions affecting Muslim-majority countries also appear to play a role in mobilising jihadist groups, feeding their narrative and recruiting people. Issues such as the Israeli–Palestinian conflict and the foreign interventions in Afghanistan, Iraq, Libya and Mali are central to the narrative of a “war

against Islam” disseminated by jihadist groups (Burgat, 2008). In this respect, the activity and attractiveness of jihadist groups cannot be dissociated from international relations in the region and in Muslim-majority countries at large.

Bearing this in mind, the post-2011 context has made room for organised jihadist groups to emerge and promote their own approach to Islam in ways that were not possible before. In most countries that have been severely affected by conflict such as Libya, Mali, Syria and Yemen, several jihadist groups (e.g., Ansar al Sharia in Libya; Al Qaeda and IS) have organised and even gained territorial control to impose their rule. In these cases, the correlation between conflict and the emergence of jihadist groups has been highlighted in many instances – especially in areas of limited statehood (Polese and Hanau Santini, 2018).

Last but not least, state responses to terrorism are believed to provide a breeding ground for jihadist organisations. For instance, Bloom (2005) and Argo (2004) have evidenced a positive relationship between military action and violent extremism (quoted in Harrigan and El Said, 2011: 202). In this respect, Donohue (2005) has shown how the use of violence on both sides – by both the authorities (i.e., military interventions) and violent extremist groups – contributes to further violent radicalisation. In the North African context, the Egyptian state’s responses to terrorism show this relationship: as underlined earlier, state repression against members of the Muslim Brotherhood (imprisonment without proper trial, use of torture, use of violence, etc.) has led certain members of this organisation to resort to political violence and eventually translated into the spread of terrorist attacks in the country. In Tunisia, Ansar al Sharia Tunisia, the main driving force behind the jihadist surge in the 2011–2013 period, is a radical Salafist movement that was forged amid the ferocious repression within the Tunisian prison system in the early 2000s (Zelin, 2013).

In summary, the political context of North African countries should be considered when trying to understand the drivers of violent radicalisation in this part of the world. While an exhaustive literature review of the political drivers of violent radicalisation exceeds the scope of this paper, the main drivers described above show that authoritarianism and its consequences – such as human rights violations, restriction of civil and political rights, the use of torture and coercive measures against terrorist groups – can provide a breeding ground for violent extremism to thrive. The next section focuses on another strand of the literature examining the drivers of radicalisation in North Africa, namely the socioeconomic factors.

II. Socioeconomic drivers of violent radicalisation in North Africa: at the intersection of interconnected processes of exclusion

Another set of drivers believed to lead to violent radicalisation in the region is related to socioeconomic conditions. Applying the economic theory of opportunity cost to violent extremism, a strand of that literature argues that poverty and unemployment can increase the likeliness of joining violent extremist groups (Sandler and Enders, 2004). Such a perspective on violent extremism is often adopted to explain the overrepresentation of youngsters from MENA countries in the ranks of violent extremist organisations. For instance, the World Bank has suggested that economic exclusion associated with the low opportunity cost of perpetrating violent extremist attacks constitutes a predictor of violent radicalisation (World Bank Middle East and North Africa Region, MENA Economic Monitor, 2016).

In the three countries studied here, research on violent radicalisation underlines the capacity of violent extremist groups to exploit grievances related to certain socioeconomic features such as economic exclusion, poverty and low levels of education. There is evidence from Morocco that deteriorating socioeconomic conditions have contributed to the development of jihadist terrorism (Alonso and Rey, 2007). A study on a small sample of foreign fighters from northern Morocco has found that most came from marginalised and poor neighbourhoods (Observatoire du Nord des Droits de l'Homme, 2014). In Tunisia, there is evidence that those in marginalised neighbourhoods in urban areas and in poor regions are more prone to violent extremism (Marks, 2013; Torelli et al., 2012). Low levels of unemployment are considered an important factor in this context. A UNDP report on violent extremism in Africa underlined that if "an individual was studying or working, it emerged that he or she would be less likely to become a member of an extremist organization" and pointed out that "Employment is the single most frequently cited 'immediate need' faced at the time of joining" (2017: 5).

Yet, there is also evidence that violent extremists are often neither poor nor poorly educated. A famous study by Krueger and Maleckova concluded that there is no causal link between poverty, a low level of education and participation in terrorist activities (2003). Indeed, some empirical evidence points in the opposite direction: a significant proportion of violent extremists in the MENA region tend to come from middle- or upper-class families. In *Engineers of Jihad* (2016), Diego Gambetta and Steffen Hertog have shown that a disproportionate share of jihadists come from an engineering background. These findings echo Sageman's study on the profile of leaders of jihadist organisations (Sageman, 2008).

Thus, while some evidence shows correlations between poverty, education and violent extremist, it is hard to affirm whether poverty and education are predictors of violent extremist attitudes. In this context, some have suggested that *relative deprivation* (instead of absolute deprivation) may provide an explanation for the links between poverty, education and violent extremism in the MENA region. For instance, a study by the World Bank has shown that interconnected processes of social, economic and political marginalisation can push youths from MENA countries to join violent extremist groups (World Bank, 2016) In this region, getting a job opens the way to economic independence, which is a prerequisite to getting married – a crucial step in the transition from youth to adulthood. However, not only does the MENA region have the world's highest youth unemployment rates (26.7% in 2020), the patterns of youth unemployment are very specific, with highest unemployment rates among the more educated and qualified. As a result, youth unemployment fuels what Robert Gurr (1970) calls the feeling of "relative deprivation" (the gap between expectations and reality) and can push some in the hands of violent extremist groups. Using survey data from eight Arab countries, Kartika Bhatia and Hafez Ghanem (2017) have shown that unemployment amongst educated young people considerably increases support for violent extremist ideas.

In this context, we cannot safely assert that there is a direct relationship between poverty, low levels of education and violent radicalisation. Such a relationship is unclear at best and ambiguous at worst. In one sense or another, the evidence discussed above is almost systematically context-specific. We should therefore not assume that poorer and/or less educated equals more prone to violent extremism. But neither should we dismiss the role played by these factors in the process of radicalisation either. To fully understand the interplay between socioeconomic conditions and violent extremism, a useful approach has been proposed by Süß and Aakhunzada (2019), differentiating between *socioeconomic grievances*, *socioeconomic opportunities* and *socioeconomic narratives*:

- *Socioeconomic grievances* can lead to violent radicalisation when they motivate individuals to use violence to overcome them;

- *Socioeconomic opportunities* can lead to violent radicalisation when violent extremist groups compete with governments to provide basic social services to certain populations; and
- *Socioeconomic narratives* are the framing of socioeconomic grievances and opportunities by violent extremist groups to attract followers.

To conclude this section, a series of political and socioeconomic factors have been identified to explain violent radicalisation in North African countries. This overview shows that several drivers related to socioeconomic conditions and to political contexts seem to apply to all Maghreb countries, although to varying extents. In terms of political drivers, the use of repression (including torture); restriction of freedom and civil liberties; the lack of capacity to channel grievances; human rights violations; (abusive) coercive responses to terrorism and international conflicts and interventions relating to Muslim-majority countries may contribute to violent radicalisation. In terms of socioeconomic drivers, we have seen the complex interplay of factors at stake such as poverty, education and unemployment levels and their multiple possible correlations. Particular attention has been given to the way these drivers can feed a feeling of relative deprivation, which can make individuals receptive to violent extremist ideologies.

This overview also helps us understand the wide range of grievances that violent extremist groups seek to exploit in order to recruit people in the region. In a context marked by authoritarianism, high rates of youth unemployment and a wide range of political and socioeconomic grievances, violent extremist groups bring the promise of empowerment (e.g., through a job, a divine mission), pose themselves as agents of justice and seek to establish “true Islam” in society and public affairs (Bourekba, 2020). According to our conceptual framework, these drivers contribute both to *fuelling grievances* (e.g., processes of exclusion, repression) and *creating needs* (e.g., overcoming exclusion, feeling part of a project, feeling empowered). Figure 2 summarises this analysis, with *grievances* reframed as *push factors* (what pushes individuals towards violent extremism) and *needs* as *pull factors* (what attracts them to violent extremism):

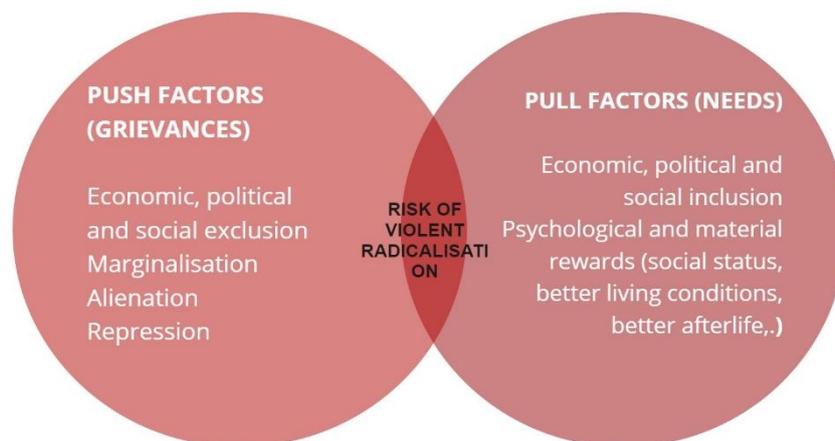


Figure 3. The push and pull factors of violent radicalisation in North Africa.
Source: author (2021).

III. Climate change and violent extremism: a two-way relationship?

Drawing on the literature on the impact of climate change and conflict (Nordas and Gleditsch, 2007), a growing strand concentrates on the relationship between climate change and terrorism. One argument – often considered neo-Malthusian – is that climate change can favour the rise of violent extremism by contributing to land, food and water scarcities that can provoke resource conflicts (Telford, 2020). Another theory is that the effects of climate change on economic prosperity (land deterioration, reduction of agricultural yields, flood damages, etc.) generate conflicts that can precipitate the emergence of violent extremism. For instance, Nett and Rüttinger (2016) contend that drought and civil war in Syria have led to political instability and made room for violent extremist groups such as the Al Nusra Front and IS to gain control of certain areas. In the same vein, a large-scale study on 129 countries during the 1998–2012 period has shown that natural disaster tends to increase the likelihood of transnational terrorism (Paul and Bagchi, 2018).

However, other studies have shown that the relationship between climate change and violent extremism is more complex than it appears. Drawing on data from dozens of countries, Salehyan and Hendrix (2014) find that water abundance (rather than water scarcity) is positively correlated with political violence and suggest that water scarcity may have a pacifying effect on armed conflict. In some cases, other parameters seem to have more influence on violent extremism than climate change itself. In a study published in 2020, the International Crisis Group relates the rise of violence in the central Sahel to transformation in the modes of production and dismisses the theory that resource scarcity has generated or exacerbated conflicts in this region. It also suggests a positive correlation between the creation of new resources and conflicts over land use and access to land; especially when the creation of new resources is combined with the absence of mediation mechanisms between communities.

So, does climate change contribute to violent extremism? A definitive answer to this question must await further research, with no direct link between climate change and violent extremism proven so far. The lack of a direct link does not, however, mean the absence of interaction between these phenomena. In this respect, Thomas Renard (2008) contends that climate change can have an impact on terrorism through three types of causal relation. Climate change can:

1. Aggravate the *instigating causes of terrorism*, in other words, the causes and conditions deemed necessary for terrorism to develop (“root causes” of terrorism) such as poverty, inequalities and corruption;
2. Exacerbate permissive factors that can facilitate the emergence of terrorism, such as limited statehood or regime instability; and
3. Multiply the number of precipitant events – unexpected events that can lead to a surge of political violence (e.g., natural disasters).

A similar view adopted by Nett and Rüttinger considers that climate change acts as a “threat multiplier”: it can intersect with other risks in certain contexts and “can increase

the likelihood of fragility or violent conflict” (2016:8). These scholars identify three types of interaction between climate change and conflict:

1. Climate change contributes to fragility and conflicts around natural resources and livelihood security. This allows non-state armed groups (NSAGs) to flourish in areas of limited statehood and provide basic services to local populations;
2. Climate change has a negative impact on livelihoods (food and water insecurity), thus making local populations more vulnerable to recruitment by NSAGs; and
3. Natural resources can be used by violent extremists as a weapon of war: for instance, by controlling access to food and water.

From this perspective, climate change can exacerbate a series of existing factors that are believed to be behind the rise of non-state armed groups, such as poverty, access to resources and the lack of good governance. Thus, a relationship between climate change and NSAGs can exist, even if it is only indirect.

An indirect link between the two phenomena has been proposed in several cases. In the Lake Chad Basin, climate change, combined with food insecurity, rapid population growth and poor governance, is believed to have contributed to the rise of Boko Haram (Malley, 2020). Finally, Marquette (2020) argues that jihadists have gained ground in Mali by posing as agents of justice and promising they would address the grievances expressed by pastoral communities, especially when it comes to access to food and water.

In this case study, this perspective – of climate change as a “risk multiplier” – is used to look at the potential impacts of climate change on violent extremism in North African countries.

A. Climate change impacts in North African countries

According to the IPCC Fifth Assessment Report, the MENA region is emerging as “one of the hotspots for worsening extreme heat, drought, and aridity conditions” (World Bank Group, 2014: 26). Since 1990, the region has been warming at a rate that exceeds 0.2°C per decade, while about 90% of summers are expected to have heat extremes reaching 40°C (more than double the global average). Some climate model projections forecast decreased rainfall and increased extreme drought conditions around the Mediterranean, including North Africa (Lelieveld et al., 2016). In Maghreb countries, the consequences of such variability on water access, agriculture and other climate-sensitive activities such as tourism, combined with limited institutional capacity to cope with climate change, are likely to make climate change a risk multiplier in the region by “imposing additional pressures on already scarce resources and by reinforcing pre-existing threats connected to migration following forced displacement” (World Bank Group, 2014: 26). Indeed, with global mean annual temperatures expected to increase by between 3°C and 5°C, North African countries will face several challenges related to access to water, agriculture and economic security (Verner, 2012).

Firstly, all North African countries are experiencing high levels of water stress. According to Warren et al. (2006), water stress may affect between 80–100 million people in the MENA region by 2025. While scenarios indicate that water availability will be further reduced in the coming decades (IEP, 2020), growing populations and rising water use per capita may aggravate water scarcity in a region that already suffers from a water deficit. Water demand is expected to increase by 60% in 2045, which may prevent North African countries from providing drinking water to their population, irrigating crops¹ and supporting industry (Verner, 2012).

¹ About 84% of freshwater withdrawn is allocated to agriculture in this region (IEP, 2020)

With 70% of the region's agriculture rain-fed, the effects of climate change put North African countries at risk. Rainfall is projected to decline by 4% to 27% annually and seasonal temperature variability is expected to increase in the coming years. Irrigating crops – especially in semiarid and arid regions – will thus become increasingly challenging (Radhouane, 2013). Put simply, the effects of declining precipitation are expected to affect the availability of water, which will in turn decrease agricultural productivity. In fact, less rainfall combined with hotter average temperatures are expected to lead to a decline in agricultural productivity in the whole Mediterranean region after 2050 (Verner, 2012). According to official sources, agriculture contributes approximately 12% of Algeria's GDP and employs 9.6% of its active population (Office National des Statistiques, 2019); 13% of Moroccan GDP and 38% of its total active population (74% in rural areas); and about 10% of Tunisian GDP and close to 15% of its active population (over 44% in rural areas) (World Bank, 2012). From this perspective, the economic consequences of climate change on agriculture directly affect the economy and employment, especially in rural areas.

Increasing water-stress levels and decreasing agricultural productivity may be expected to increase urban–rural migration. Indeed, around one-third of North African inhabitants live in rural areas: around 27%, 37% and 31% of the total population of Algeria, Morocco and Tunisia, respectively (World Bank, 2019). While climate change has not been cited as a driving force for migration, warmer temperatures combined with changing precipitation patterns could reduce viable cropland and access to water, increase urbanisation and pose new challenges for the authorities when it comes to accommodating these populations (especially in terms of infrastructure) (Wenger and Abulfotuh, 2019).

But urban areas are also vulnerable to the effects of climate change. For instance, more intense rainfall events increase flash flooding in cities around the region that can even result in people dying. In Algeria, flash floods are estimated to take the lives of 30 people each year (Gaume et al., 2016). In February 2021, flash floods killed 28 workers in a textile factory in the city of Tangiers (Morocco). One month later, seven Algerians died for the same reasons in the region of Chlef (north-western part of the country), while flash flooding episodes are increasingly frequent in Bizerte and Tunis (Tunisia).

In terms of economic productivity, it is estimated that a 1°C rise in temperature per year can translate into a 1.1 percentage point fall in a country's growth rate. Beyond the impact on agriculture, a rise in the Mediterranean Sea level (expected to be between 23–47 cm by the end of the 21st century) will likely submerge and erode several regions, especially coastal areas where tourism is developed (Verner, 2012). Tourism represents 7% and over 14% of Moroccan and Tunisian GDP, respectively, and employs 5% and over 10% of their total active populations.² These groups and the countries as a whole will therefore inevitably be affected by such trends in coming years.

In a nutshell, climate change in North Africa has considerable consequences for parameters such as water availability, agriculture, urbanisation and the economy that are key for the countries' economic, social and political stability. While an exhaustive examination of the impacts of climate change in this region would exceed the scope of this paper, this overview provides some clues to better understanding how climate change could eventually interrelate with violent extremism. Building on this subsection and drawing on the conceptual framework, the next subsection explores possible linkages.

² In contrast to Morocco and Tunisia, tourism is less developed in Algeria. According to various official estimates, the tourism sector contributes less than 2% of Algerian GDP.

B. The impact of climate change on violent extremism: a two-way relationship?

In her study on climate change and security in North Africa, Sophie Desmidt (2021) identifies five main ways climate-related security and development risks can lead to conflict: firstly, climate change can alter the access to and availability of natural resources, which can lead to growing competition for them (including through conflicts). Secondly, it contributes to rising inequalities and livelihood insecurity through its impact on economic activity (especially agriculture and tourism) and food prices, which creates room for social unrest and conflict. Thirdly, climate change and its effects can be manipulated by armed opposition and violent extremist groups (e.g., access to scarce resources controlled by Boko Haram around Lake Chad). Fourthly, this phenomenon can affect food prices and food supplies, especially in countries that depend on food imports and food subsidies. Finally, incoherent climate policies may create unintended consequences if they do not consider local contexts.

So, how might climate change specifically affect the region's patterns of violent extremism? The previous subsection pointed out that violent extremism was fed by a series of socioeconomic, political and psychological drivers (i.e., drivers of violent radicalisation). It underlined that the process of violent radicalisation affects individuals who do not, originally, form part of violent extremist groups. As such, the potential impact of climate change on violent extremism goes beyond the possible manipulation of its consequences/natural resources by violent extremist groups. My hypothesis is that mutual interactions do potentially exist between climate change and violent extremism. The next two subsections look, respectively, at the possible effects of climate change on violent extremism and the opposite – the possible effects of violent extremism on climate change.

I. The effects of climate change on violent extremism

Climate change may contribute to violent extremism in several ways. The first and most important way is by *feeding a series of existing grievances* that are believed to lead to violent radicalisation.

Firstly, the economic effects of climate change may indirectly affect the patterns of violent extremism in the region. As we have seen, climate change has an impact on agriculture and tourism, two sectors that employ a significant proportion of the North African population. On the other hand, (youth) unemployment can be conducive to violent extremism especially when it feeds the feeling of relative deprivation, for example, when it affects those with high qualifications (El Saïd and Barrett, 2017). In this context, climate change could be an indirect driver if it contributes to significantly deteriorating the socioeconomic conditions in areas that are dependent on agriculture and/or tourism.

Climate change can also feed violent extremism through its impact on food and water insecurity. In a region where one-third of the people find themselves affected by food insecurity (IEP, 2020), the effects of climate change on food and water insecurity may increase competition for access to natural resources that could make room for the emergence or spread of violent extremist groups who could either control access to natural resources or exploit the narrative of people being marginalised by the authorities to recruit new members. While the manipulation of natural resources by violent extremist groups has been observed in other regions (e.g., Lake Chad by Boko Haram, Mosul dam by IS), such a circumstance has not occurred yet in North Africa. This is perhaps due to the

fact that none of the three Maghreb countries could be qualified as a failed state. Algeria, Morocco and Tunisia have strong security apparatus and decades of experience in the field of counterterrorism, which makes it very hard for violent extremist groups to take control of strategic resources and/or territorial lands. Besides, when physically present, violent extremists are often located in a few hard-to-reach areas (e.g., the Algeria–Tunisia border, the Sahara Desert). However, no area is under their control in the Maghreb region.

Climate change effects on rural–urban migration in this region can also contribute indirectly to the rise and spread of violent extremism. By deteriorating the economic conditions in rural areas, climate change is one of the drivers that interrelate with other political, economic, demographic and social drivers of rural–urban migration in the region (Bilgili and Marchand, 2016). This phenomenon can be accompanied by a process of fast/uncontrolled urbanisation which translates into the creation of slums or ghettos around big cities. Morocco is a case in point: its urbanisation rate increased from 53% to 56% from 2000 to 2010 and Moroccan cities grew at more than four times the rate of rural areas during the same period (Wodon et al., 2014). Not surprisingly, the existence of slum areas resulting from this process of urbanisation has been cited as an aggravating factor of violent extremism in the country (Belaala, 2004; Masbah, 2015). Indeed, the three main Moroccan cities hit by the important influx of rural migrants – Casablanca, Tangiers and Tétouan – are surrounded by shanty towns on their outskirts where living conditions are difficult (high unemployment rates, low quality education, malfunctioning or absent social services). While this has allowed conservative (non-violent) Islamist movements to thrive and fed the narrative of marginalisation amongst inhabitants (Pargeter, 2009), the areas have also been exploited by violent extremist networks looking to expand their influence. The fact that the perpetrators of the 2003 Casablanca attacks were from one of these marginalised areas of Casablanca and that two-thirds of Moroccan foreign fighters originally come from slums in Tangiers and Fnideq (Masbah, 2015) is not purely coincidence. Again, no direct relation can be posited between living in poor slums and becoming a violent extremist, but slum areas appear to exacerbate several grievances that can lead to violent radicalisation in certain cases (feeling of exclusion, lack of basic services, alienation, etc.). In that sense, the link between climate change, rural to urban migration and the creation of slums on the one hand, and between the living conditions in such slums and violent extremism on the other should be considered.

Another way climate change can fuel violent extremism is by putting additional pressures on governance and institutions. Climate change can exacerbate certain communities' needs such as access to drinking water and new infrastructures to cope with the effects of this phenomenon or by increasing the exposure to natural disasters. Under such pressure, political authorities and institutions are compelled to act effectively. When they do not, they run multiple risks, ranging from the loss of confidence by certain constituencies to social unrest, including intercommunal conflicts. The subsequent loss of legitimacy and trust, the emergence of intercommunal conflicts and the deterioration of living conditions are some of the drivers that can make room for violent extremist groups to emerge or, at least, for their narrative ("the government abandoned us") to be spread. For instance, climate change may have benefited the Taliban in so far as it contributed to: (1) land degradation, competition over land and ethnic conflicts in which the Taliban was indirectly involved in order to control the land; (2) reduced livelihoods which developed resentment towards the government and created opportunities for armed groups to recruit from affected populations; and (3) exposure to natural disaster and hazard events which were mismanaged by the authorities and allowed armed groups to present themselves as alternative providers of social goods and basic services (Nett and Rüttinger, 2016). In the same vein, Boko Haram was supported around Lake Chad partly because local populations believed the organisation could be an alternative provider of basic services and overcome the livelihood insecurity around the lake (ICG, 2016). In other words, climate change may further erode governments' legitimacy and create a fertile ground for violent extremist

organisations where the institutional capacity cannot effectively respond to the needs created by the effects of climate change.

Even though climate change clearly stresses governance and institutions in North Africa, provoking several recent episodes of thirst protests or “thirst uprisings” in Zagora (Morocco) in 2017 and Tataouine (Tunisia) in 2018, we have not yet seen cases where violent extremist groups directly take advantage of such circumstances as they did in Afghanistan and Syria, or around Lake Chad. However, the fact that some of these protests are often met with repressive responses from the authorities, combined with the lack of institutional capacity to effectively respond to crises, creates possibilities for further stress on governance and institutions in Maghreb countries. In this context, we may expect stress on institutions induced by climate change to (1) lead North African regimes to increase coercion to bolster their security; (2) further weaken the public’s confidence in institutions because they lack institutional capacity to respond to climate-related crises; and (3) increase opportunities for violent extremist discourse to emerge in climate change-affected areas.

As shown, climate change can affect violent extremism in the region in many ways. Figure 3 summarises the potential ways climate change can impact the patterns of violent radicalisation in the region:

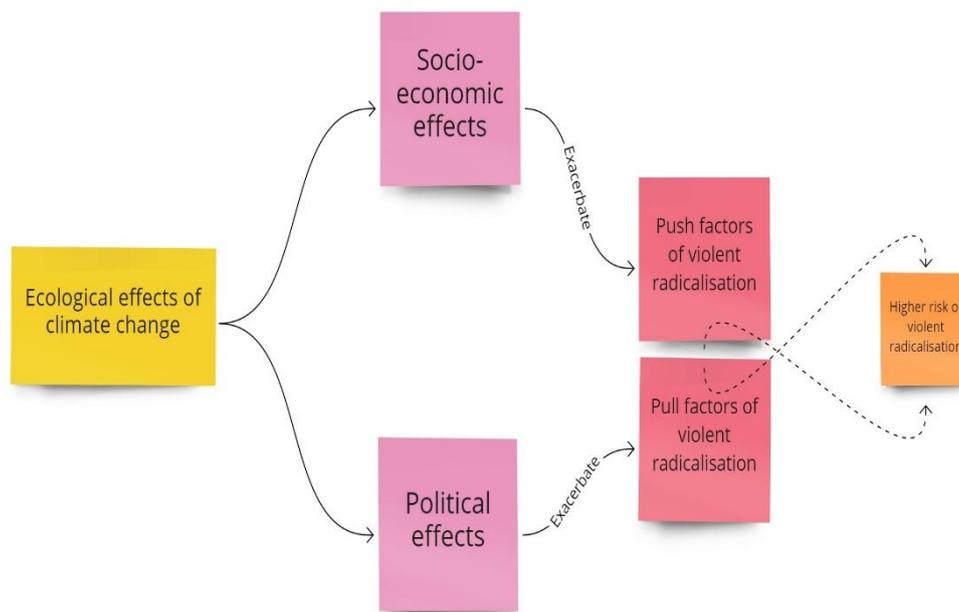


Figure 4. The interplay of climate change and violent radicalisation in North Africa. Source: author (2021).

The next subsection focuses on the possible effects of violent extremism on climate change.

II. The impact of violent extremism on ecosystems and vulnerability to the effects of climate change

Extremist activity can affect the exposure of certain segments of the population to climate change or climate hazards. On the one hand, violent extremists can alter the environment within which they operate. For instance, the Somali jihadist movement Al Shabaab has been using the illegal charcoal trade to fund its illegal activities for several years, despite the practice being banned by the government since 1969 (Petrich, 2019). This activity is believed to have led to land degradation and deforestation, which have made populations more vulnerable and exerted pressure on livelihoods (UNDP, 2020).

On the other hand, coercive state responses to terrorism (i.e., counterterrorism) can also expose populations to climate hazards, affect the economy and contribute to livelihood insecurity. The most eloquent illustration of that is certainly the “Global War on Terror”. The US invasion of Afghanistan (2001) and Iraq (2003) and the subsequent military operations have contributed to damaging water quality and sewerage plants, while multiple oil fires have caused high levels of air pollution and groundwater contamination (United Nations Environmental Programme, 2003). The use of unconventional illegal weapons such as napalm, cluster bombs and depleted uranium in heavily populated areas also led to air pollution that included toxic metals and contaminated hundreds of sites with hazardous waste (Al-Azzawi, 2016). Afghanistan was affected by similar issues, but the military interventions also contributed to forced displacement and major deforestation caused by the displaced populations (Mitra and Azimullah, 2020). More recently, the multiple military operations led by the United States of America, Russia and the Syrian regime – to mention but a few – against IS in Syria and Iraq, which have included bombings, airstrikes on oil complex refineries and oil fires, have generated huge environmental damage such as groundwater contamination and the release of toxic particles into the air (e.g., sulfur dioxide, nitrogen dioxide). These actions will have severe consequences both in the short and long run (damaging agricultural land and water for drinking and domestic purposes, provoking respiratory disorders, cancer, etc.).

In the Maghreb region, a considerable number of counterterrorism operations are carried out in border regions in south-eastern Morocco, south-eastern Algeria and western Tunisia. These areas have been characterised by increasing smuggling and informal trade in recent years, which has also favoured the emergence of certain violent extremist groups. Tunisia is a case in point: several hundreds of Algerian, Egyptian, Libyan, Moroccan and Tunisian individuals are enrolled in violent extremist groups such as the Uqba Bin Nafaa Brigade located near the Tunisia–Algeria border (Ayari, 2017). Regular clashes between terrorist groups and security forces at the Tunisia–Algeria and Tunisia–Libya borders have resulted in several dozen deaths since 2011. Counterterrorism operations carried out by Tunisian security forces contributed to dismantling over 673 terrorist cells located near the Tunisia–Algeria border between 2013 and 2016. Counterterrorism efforts include military operations such as regular bombings at the Tunisia–Algeria border (closed and requalified as a military zone), and the militarisation of the Tunisia–Libya border to avoid spill-over from the conflict in Libya. While there is no estimate of the environmental damage of such efforts, these responses to terrorism have severely impacted informal cross-border trade, which provides incomes to many families living near the border and poses greater security risks (Santini and Cimini, 2019). Closing these borders deprived many border communities of their incomes and left them with few alternative livelihoods. In these circumstances, the appeal of violent extremist ideologies can increase (Rousselier, 2018).

To sum up, climate change can contribute to violent extremism in North African countries by:

1. Exacerbating certain *grievances* which are believed to lead to violent radicalisation;

2. Creating new *needs* resulting from the effects of climate change (e.g., livelihood security, access to water and natural resources);
3. Eroding *governments' legitimacy and institutional capacity* to respond to the challenges posed by climate change; and
4. *Feeding narratives on marginalisation and exclusion* disseminated by violent extremist groups.

On the other hand, violent extremist activity can alter the environment both directly (e.g., economic activities damaging the environment) and indirectly (e.g., large-scale military counterterrorism operations). That said, the argument made in this section has several caveats that are discussed in the following subsection.

III. Theoretical considerations and practical limitations of the approach

Clearly, there are different types of potential interaction between climate change and violent extremism and a series of theoretical and practical aspects should be considered when applying this study's approach to the Maghreb countries.

Firstly, the approach is mostly theoretical. The interactions between climate change and violent extremism are neither *direct* nor *deterministic*. In other words, the approach relies on two types of theoretical assumption or hypothesis: those that relate climate change with its effects on the economy (in the broader sense) and those that point to certain drivers and conditions behind the emergence of violent extremism. Earlier, it was noted that no direct relation has been proven between conflict and climate change. At best scholars find some correlations which are positive in certain contexts and negative in others. The same goes for the relationship between climate change and violent extremism. Moreover, the apparent correlation between the two phenomena can, in some cases, mask other non-climatic factors that are conducive to violence (ICG, 2020). These limitations need to be considered when conducting an empirical investigation of the role of climate change in fuelling violent extremism in the Maghreb.

Similarly, this approach can only provide a simplified account of violent radicalisation and the pull and push that may prompt it. Violent radicalisation being a multidimensional process, it is inherently difficult to pinpoint one or only a few factors as culprits. Violent radicalisation depends on a combination of factors at the micro-, meso- and macro-levels. In other words, the rise of youth unemployment or the increase in water conflicts does not necessarily mean a subsequent increase of violent extremism. It might lead to violent extremism when it interplays with other individual (e.g., alienation) and/or meso-level (e.g., presence of radical agents) and/or macro-level factors (e.g., conflict). But, again, this may be conducive to violent radicalisation for only a small number of individuals.

In this context it is worth emphasising that the Maghreb is characterised by a number of macro-level factors that distinguish it from other regions where links between climate change and violent extremism have been identified, such as for example the Lake Chad region, Afghanistan, and Syria. There are reasons to believe that those conditions could interrupt climate–extremism links in the Maghreb and thus lead to a different relationship between climate change and violent extremism in the region.

The first set of macro-level factors has to do with the link between grievances and violent radicalisation. Even though Maghreb countries show varying degrees of authoritarianism and civil liberty restrictions, it is worth emphasising that most grievances that affect large segments of the population – unemployment, corruption, police abuses, and so on – lead to violent extremism in only a very small number of cases. More often than not, those

grievances are expressed through other channels, both conventional (politics) and unconventional (protests, sit-ins, etc.). The ongoing mass uprisings since 2011 are a clear example of that: the demands expressed (e.g., the Hirak movement in Algeria since 2019) have to do with better living conditions, the fight against corruption and human rights violations and the establishment of the rule of law, among others – several grievances that can be conducive to violent extremism. Put simply, although climate change may exacerbate several types of grievance that are conducive to violent radicalisation, other options to seek to overcome them exist, apart from violent extremism.

The second set of macro-level factors has to do with the political and institutional context of North African countries. Unlike the countries where violent extremists seem to have benefited from the damage caused by climate change, Maghreb countries exert strong control over their population and territory. According to the Fragile States Index, Somalia, Syria, Afghanistan and Mali are amongst the world's ten most fragile states, while Algeria, Morocco and Tunisia respectively rank 71st, 80th and 95th out of 178 countries. In addition to that, Maghreb countries have demonstrated their capacity to withstand security challenges and even moments of crisis without overall systemic collapse. Algeria has overcome a civil war (1992–2001) and managed to demobilise several thousands of FIS-affiliated armed citizens as part of its national reconciliation launched in January 2000. Since 2019, the regime has not given in to the pressure exerted by the broad non-violent Hirak movement and its weekly protests. Likewise, the Tunisian state has not collapsed despite the overthrow of the Ben Ali regime that resulted from the January 2011 revolution. Indeed, Tunisian security forces managed to prevent IS armed militants from taking the city of Ben Gardane during a large-scale attack carried out in March 2016. While the Moroccan regime has not been subject to such crises over the past two decades, it has shown its capacity to maintain social control in the face of massive protests such as the 11th of February movement (2011) and the Hirak movement (2016 and 2017) through top-down reforms and repression. In other words, the robust state structures that characterise Maghreb countries and the significant role played by their security apparatus in maintaining stability makes it very difficult for violent extremist groups to emerge and expand physically. Nevertheless, while authoritarian rule and repression may bring some political gains and guarantee stability in the short-run, repression can also fuel the radicalisation of some segments of the population, as proven by the case of Egypt described above.

Contextual and region-specific factors should not be overlooked when investigating possible links between climate change and extremism in the Maghreb. Nevertheless, this does not preclude the fact that interactions between these risks could increase in the future. The next subsection outlines a few challenges in this respect.

IV. Challenges for the future

As in other parts of the world, the effects of climate change currently observed in North Africa will likely worsen in the coming years. Building on the possible interactions between climate change and violent extremism, the following elements may exacerbate certain conditions and drivers that are assumed to lead to violent extremism in the region:

1. The impact of climate change on water availability and quality. Water stress is expected to increase over the coming years and decades in North Africa. This will reduce water availability and water quality, which may result in recurrent water shortages in urban and rural areas. Such a situation may create more and more conflicts for access to water and water use, which could be seen as an opportunity for violent extremist groups and propaganda to emerge.

2. Water stress, combined with other elements such as temperature and rainfall variation, droughts, salinisation and flooding, will threaten food security and severely affect the economy. This is particularly the case for the agricultural sector. In this context, the economic conditions may deteriorate, especially in rural areas where the agricultural sector is predominant. Water stress will also affect other economic sectors that are crucial for Maghreb economies. Industry and tourism will be more and more affected by water stress and its consequences in the coming years. The deterioration of the Maghreb economies may fuel the already existing grievances of the most affected segments of the population (youth, women, rural populations), which may make a few of them vulnerable to violent extremist ideologies promising all sorts of material and immaterial rewards.
3. The stress induced by climate change is likely to accelerate the already growing trend of rural to urban migration. This will pose greater challenges for city governance, especially when it comes to accommodating newcomers and providing them with basic public and social services. In the words of the UNDP, “where governments are overwhelmed by socioeconomic, demographic and political challenges worsened by climate change and are unable to perform key functions such as disaster response, or where the climate-affected context increases political exclusion and marginalization, violent extremist groups are often able to capitalise on these grievances and use them to support divisive narratives that drive recruitment” (2020: 5). In the case of rural to urban migration, the subsequent expansion of slums – characterised by bad living conditions and civil unrest – is of utmost importance, as they can be areas where violent extremist narratives may thrive.
4. As these risks are transnational, the possibility of civil and/or interstate conflicts emerging in the coming years should not be discounted. Increasing competition for access to strategic resources (water, land, food, etc.) has already translated into civil unrest in North African countries (e.g., thirsty protest, food riots). On the other hand, the transnational character of phenomena such as droughts, water scarcity and land degradation can lead to interstate conflicts. The current tensions between Egypt and Sudan over the use of the Nile River are a telling example of such a possibility. Political instability and civil and/or interstate conflicts provide opportunities for violent extremist groups to emerge and exploit the chaotic situations. In a scenario of climate change related interstate conflicts, certain states may use violent extremist groups as proxies to pursue (geo)political gains (e.g., access to strategic resources). In this respect, the environmental, political and security developments in the Sahel region should come under scrutiny given their possible effects on the security of neighbouring Maghreb countries.

While no direct relations have been proven between climate change and violent extremism in the Maghreb region, this brief overview shows that there is potential for interactions between the two phenomena in the future. The projected effects of climate change on food and water security, the economy, rural to urban migration and conflicts show that the climate security nexus could be of relevance to strategies aimed at combating and preventing violent extremism.

To conclude this section, climate change affects North African countries in many aspects, including water quality and availability, agriculture, urbanisation and the economy. The potential ways climate change can affect the patterns of violent extremism in this region have been explored. Several effects of climate change on the economy, on rural–urban migration and on governance and institutions can contribute to exacerbating different push factors of violent radicalisation such as political alienation, feelings of marginalisation and relative deprivation while strengthening the narrative of certain

violent extremist groups. Likewise, although it has not been observed as such in Maghreb countries, violent extremist groups can alter the environment in which they operate. While the effects of one phenomenon over another should not be overstated, potential interactions between climate change and violent extremism could be observed in the coming years. In this context, the next subsection provides an overview of policy responses to violent extremism in Maghreb countries to see whether they include climate change considerations or not.

IV. Climate change and policy responses to violent extremism

Maghreb countries have developed a few policies and programmes that address violent radicalisation, and yet these initiatives tend to disregard potential risks related to climate change. Algeria, Morocco and Tunisia's different sets of non-coercive methods to deal with violent radicalisation and violent extremism (i.e., soft-security measures) have emerged over time within the framework of their counterterrorism efforts (Bourekba, 2016; Watanabe, 2018). Those strategies, often aimed at "countering violent extremism" (CVE) or "preventing violent extremism" (PVE), include a wide range of measures dealing with the "root causes" of terrorism and the drivers of radicalisation (e.g., fighting socioeconomic marginalisation, religious "de-radicalisation" programmes). If we look at their components, those policies deal with a series of factors that are believed to lead to violent radicalisation.

In the case of Algeria, because of the impact of civil war on the country, the authorities have first and foremost focused on counterterrorism efforts to thwart violent extremism at home. In terms of P/CVE efforts, Algeria has increasingly concentrated on the religious dimension of violent radicalisation. These efforts include the close monitoring of imams and religious institutions in the country; co-optation of religious figures who have "repented" from terrorist organisations in order to dismiss violent extremist beliefs; the creation of media (TV programmes, radio stations, websites, etc.) to promote the official interpretation of Islam and online counter-messaging campaigns to address jihadist propaganda.

Morocco, by contrast, has developed strategies aimed at improving the socioeconomic conditions of at-risk groups along with measures that deal with the religious dimension of violent radicalisation (e.g., monitoring the religious sphere, de-radicalisation programmes targeting inmates, training for imams) (Masbah, 2018). In the wake of the 2003 Casablanca bombings, Morocco bolstered its counterterrorism legislation, especially the penalties for individuals involved into terrorist activities. The implementation of the security program *Hadar* ("vigilance") in October 2014, which consists of regular patrols by security forces to protect civilians across the kingdom, and the creation of Morocco's Central Bureau of Judicial Investigation in March 2015, which was placed in charge of prosecuting terrorist offenses, are part of these efforts. In terms of P/CVE efforts, Morocco mostly concentrates on the religious dimension of radicalisation. The authorities use an official religious organisation founded in 2006 – the Mohammedian League of Islamic Scholars (*Rabita al-Mohammadia of Ulema*) – to promote an "open and tolerant" interpretation of Islam,

which fundamentally rejects the use of violence committed in the name of Islam. In the same vein, a training programme for women to become religious preachers was launched in 2015. Called *Murchidates* (female spiritual guides), this programme provides women with a series of skills to encourage them to promote the official interpretation of Islam in different spheres (e.g., prisons and mosques). These efforts are aimed at strengthening an official discourse on what is (and what is not) Islam in both the public and private spheres. In this way, the actors trained or employed by these religious-oriented institutions “have become the spokespersons of Moroccan Islam in the media” and challenge extremist interpretations of Islam. This strategy is taken to underline the legitimacy of the state as a source of theological information and as a major actor in the religious field (Mouna et al., 2020: 12).

Finally, Tunisia, with the support of the UNDP and the European Union, has developed a National Counterterrorism Strategy which includes several PVE-related aspects such as the improvement of police–citizen relations and the fight against economic marginalisation. Indeed, the country adopted P/CVE initiatives following the two large-scale attacks in the Bardo Museum and the city of Sousse (2015). These attacks drew considerable attention in the international community, put pressure on the government and led to the adoption of a national counterterrorism strategy. In August 2015, a Counter-Terrorism Law was enacted to provide a framework for counterterrorism efforts in the country. In the field of PVE, this law led to the creation of the National Counter-Terrorism Committee (*Commission nationale de lutte antiterroriste*), an inter-ministerial structure involving a dozen ministries to coordinate counterterrorism and PVE efforts. The ministries include Human Rights; Youth and Sports; Women, Family and Childhood; Education; and Culture and Religious Affairs, just to mention a few. In addition to that, the Counter-Terrorism Fusion Centre created in 2014 provides research and relevant data to lay the foundations for evidence-based policies in the field of CT and PVE. Aside from the committee, several efforts have been carried out to fight against violent extremist narratives. This is the case of a campaign called “We are Islam” conducted by the Ministry of Religious Affairs in 2015 in order to dismiss violent extremist propaganda. In a similar vein, a communications unit tasked with disseminating alternative narratives was created in December 2016 as part of the prime minister’s office. Its aim is not to counter terrorist propaganda but rather to offer what Scott Atran (2015) calls “positive alternative narratives”, in other words positive messages mainly directed at young people to divert them from VE groups.

More importantly, the international pressure after the 2015 attacks led the government to adopt a National Counter-Terrorism Strategy in 2016. This strategy is very similar to the EU Counter-Terrorism Strategy (2005) and the CONTEST strategy (United Kingdom) and adopts the same four-pillar structure: *Prevent, Protect, Pursue* and *Respond*. Its aim is not only to *counter* terrorism but also to *prevent* the emergence of factors and conditions that are believed to lead to engagement in terrorist activities. However, beyond the existence of a “prevent” pillar within the National Counter-Terrorism Strategy, there is no information about any preventative measures being implemented by the government (Letsch, 2018: 175). In this context, considerable funding from international organisations (such as the UNDP and the World Bank) and governmental organisations (e.g., US Department of State, ACTED) has been devoted to dealing with the drivers of violent radicalisation. A wide range of projects have been implemented by civil society organisations in the PVE field. These projects deal with a broad spectrum of potential drivers of radicalisation such as marginalisation, poverty, education and state–citizen and police–citizen relations.

In summary, Algeria, Morocco and Tunisia have developed different types of strategy and policies to deal with the threat of violent radicalisation. Unsurprisingly, these efforts rely heavily on the way the Algeria, Moroccan and Tunisian authorities understand the threat. The Algerian and Moroccan approach mostly (but not exclusively) focuses on the religious dimension of radicalisation, while the Tunisian approach, shaped by both

domestic and external actors, tends to deal with several socioeconomic and religious drivers of violent radicalisation. While this review cannot include all the efforts, initiatives and actions undertaken in each country, P/CVE efforts in general do not seem to include climate change considerations. Yet, considering its potential impact on some drivers of violent radicalisation in the region, climate change considerations should be part of wider P/CVE efforts in order to anticipate and address the drivers of violent radicalisation in the long term.

At policymaking level, this could be achieved through the following three lines of action:

1. Adopting a holistic understanding of violent radicalisation, including the effects of climate change on certain radicalisation push and pull factors. These efforts should be routinised within intelligence services and included within long-term P/CVE strategies (Middendorp and Bergema, 2019).
2. Dealing with the unintended consequences of climate adaptation efforts in the region. For instance, climate adaptation measures (e.g., energy transition from fossil fuels to renewable energy) can exacerbate conflicts over land and water use and marginalise different segments of the population (Desmidt, 2021). Such strategies can be exploited by violent extremist groups to feed narratives of marginalisation and alienation, or to fuel conflicts between local communities. Policy coherence is thus key in this field.
3. Addressing the wide range of climate-related security risks which are relevant to violent radicalisation within the framework of both P/CVE and climate adaptation strategies. A few examples of these risks have been addressed in this case study (e.g., rural–urban migration, impact of climate change on the economy, weak institutional responses to natural disasters). Although not all of them necessarily relate to violent radicalisation, they should be addressed as part of climate adaptation strategies, P/CVE strategies or both.

Conclusion

This case study constitutes an attempt to look at the possible interlinkages between climate change and violent extremism in the Maghreb, a region that is exposed to both phenomena today and will be in the future. On the one hand, violent extremism constitutes both an endogenous and exogeneous threat to Algeria, Morocco and Tunisia. On the other hand, climate change affects these countries and is expected to further affect them in different ways in the coming years and decades. This paper hypothesises that there can be a two-way relationship between the two phenomena: climate change can affect certain drivers of violent radicalisation that lead to violent extremism while, conversely, violent extremism can worsen the effects of climate change in certain contexts.

Our examination of the drivers of radicalisation has shed light on a series of socioeconomic, (geo)political and psychological considerations to understand what can drive individuals from these countries into the hands of violent extremist groups. On this

basis, a succinct overview of climate change effects in this region has helped us understand its potential consequences on violent extremism. Four ways climate change can affect violent radicalisation in this region have been put forward:

1. Exacerbating certain *grievances* that are believed to lead to violent radicalisation;
2. Creating new *needs* resulting from the effects of climate change (e.g., livelihood security, access to water and natural resources);
3. Eroding governments' legitimacy and institutional capacity to respond to the challenges posed by climate change; and
4. Feeding narratives based on the real or perceived grievances exacerbated by the effects of climate change (e.g., marginalisation, exclusion).

However, there are three main methodological limitations to this work: firstly, as no empirical evidence of a direct relationship between climate change and violent extremism has been produced, it is a mostly theoretical exercise. Secondly, violent radicalisation is a process that is multidimensional and shaped by micro-, meso- and macro-level drivers. As a result of that, the effects of climate change can be (at most) one of multiple variables intervening in such a process. This makes it even harder to ascertain or measure the impact of climate change on violent extremism. Thirdly, the main cases where climate change is believed to have had an influence on the development of violent extremism have occurred in contexts that are very different from the Maghreb region in terms of state structures, level of economic development and state capacity to cope with crises and/or security challenges. All the examples used to illustrate the links between climate change and violent extremism (see Section III. B) have been observed outside of the Maghreb region.

Seeing climate change as a risk multiplier can undoubtedly be useful for anticipating its effects on violent extremism in the long run, but such an approach must avoid two pitfalls. The first is oversimplifying the relationship between climate change and violent extremism. For instance, in the Sahel region the link between climate change, poverty and terrorism was posited in some instances to explain the rise of jihadist groups in northern Mali or around Lake Chad. By doing this, governments tend to displace their responsibility onto external factors and avoid any frank discussion of their contribution to the rise of violent extremism through their action or inaction (Brown, 2020). Another advantage of such an approach is that it can help certain countries to attract funding for counterterrorism in the name of the fight against poverty or climate change, as if these were the main causes behind the existence of terrorist groups (ICG, 2020). The second pitfall relates to the implications for policymaking when it comes to addressing climate change and violent extremism. While environmental factors can *also* be behind the rise of violent extremist groups, they should be considered as only one of the multiple (often indirect) sources of violent radicalisation. We should therefore be cautious about advertising the fight against climate change as a fight against violent extremism. This risks securitising climate change adaptation and resilience measures, which may stigmatise the beneficiaries of such measures and frame them as potential violent extremists (ICG, 2016).

Further research is needed to fully understand the interaction between climate change and violent extremism, but this preliminary study of North African countries has two implications for policymaking. On the one hand, in the field of P/CVE efforts, the effects of climate change deserve more attention as potential drivers or enablers of violent extremism. On the other hand, this should not distract from the central role of authoritarianism, Western interventions, lack of socioeconomic opportunities, failing governance and restrictions on civil liberties, among other factors, in the propagation of violent extremism.

From this perspective, the patterns of violent extremism in the Maghreb – a region so marked by autocracy – will mostly depend on governments' capacities to withstand the combined challenges of adverse climate changes and pressure on governance and institutions.

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