RAPID REVIEW #1 | MAY 2022

A Climate of Terror?

Climate Change as an Indirect Contributor to Terrorism

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SUMMARY

Research Questions

- In what ways can climate change serve as an indirect contributor to terrorism?

Key Insights and Findings

- While climate change may not be a direct 'root cause' of terrorism" it is recognized as a predominant destabilizing force that fosters an enabling environment for violent extremist organizations (VEOs).

- When communities or individuals lack the capacity to adopt alternative livelihoods and are exposed to increasing climate insecurity, affected communities or individuals may resort to illegal and illicit activities to generate income or feel the pull of VEOs' recruitment.

- When regions are exposed to, or situated in, an environment susceptible to climate insecurities and are highly dependent on that environment for livelihoods, a positive correlational relationship between climate change and violence strengthens. This relationship may affect violent extremism as well and requires further analysis.

- VEOs may exploit conflict and instabilities in receiving countries caused by migration and changes in mobility patterns due to diverse groups coming in contact with each other.

- VEOs capitalize on community and individual grievances as a result of perceived or actual subjective deterioration furthering their ideological agendas.

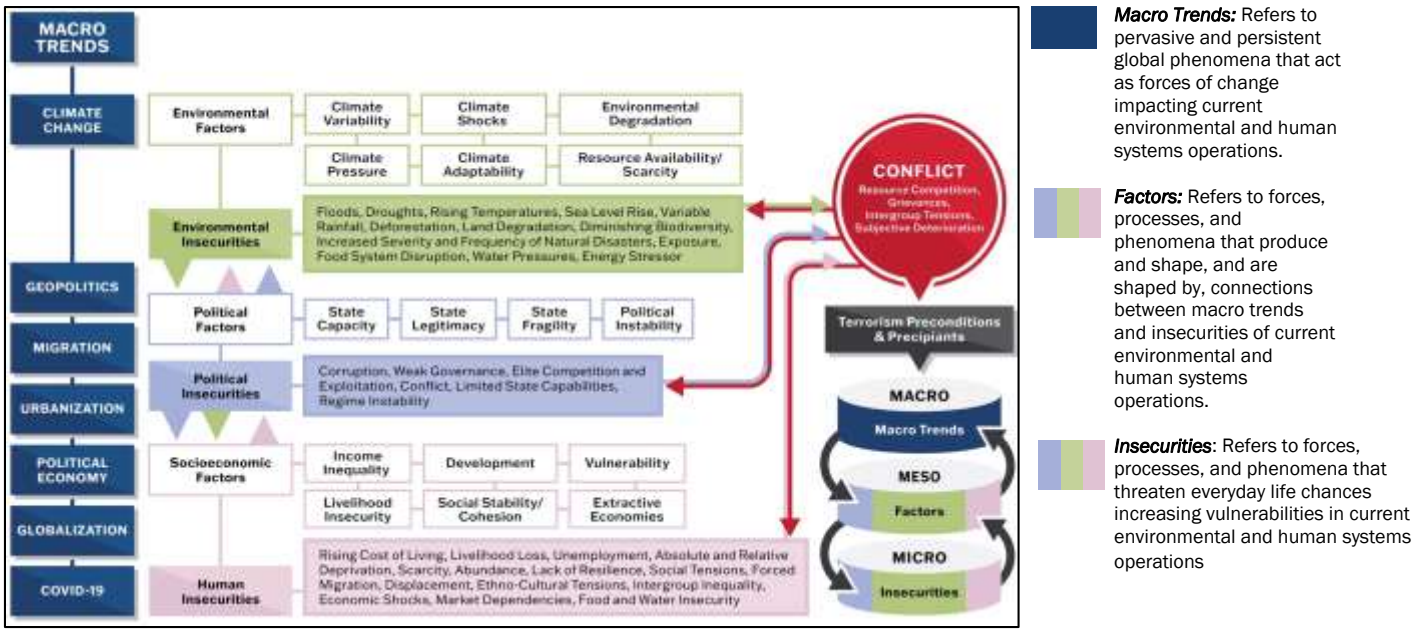
CONTENTS

Background

With growing concern over climate-related security consequences, researchers and policymakers are increasingly focused on the ways climate change may contribute to terrorism. While a direct causal link between climate change and terrorist activity is not clear, evidence suggests that the impacts of climate change assist in creating conditions that support conflict and violence, including acts of terror (Figure 1). This theoretical assertion is backed by a wealth of empirical and qualitative research on the climate-security-nexus and climate-conflict pathways studies.[1] Due to the paucity of direct research on climate-terrorism pathways, this rapid review examines four climate-conflict pathways in the evidence base that are relevant to understanding if, and how, climate and terrorism interact. It acknowledges that climate-conflict pathways research needs to disentangle different forms of conflict and political violence and advances an approach that can, in the future, identify causal mechanisms in a climate change-terrorism pathway.[2] While climate change may not be "a direct 'root cause' of terrorism" it is increasingly understood to be "an overarching destabilizing element that fosters the enabling environment for non-state actor terrorist groups."[3] In other words, climate change can be broadly understood as an *indirect contributor* to terrorism. To help explain and navigate the relationship between climate change and conflict, scholars have established four overarching and interconnected conceptual pathways.[4] Engaging the research on each pathway is valuable to the approach to better understanding the ways climate change may act as an indirect contributor to terrorism. The pathways are as follows:

- Worsening livelihood conditions,
- Migration and mobility patterns,
- Exploitation by elites and resources mismanagement, and
- Tactical considerations by violent non-state actors.

Figure 1: Climate-Security-Nexus Concept Map



[1] Lukas Rüttinger et al., 'A New Climate for Peace: Taking Action on Climate and Fragility Risks', 2015; Vally Koubi, 'Climate Change and Conflict', *Annual Review of Political Science* 22, no. 1 (2019): 343–60; Malin Mobjörk, Florian Krampe, and Kheira Tarif, 'Pathways of Climate Insecurity: Guidance for Policymakers' (SIPRI, November 2020).

[2] Tim Sweijis, Marleen de Hann, and Hugo van Manen. 2022. Unpacking the Climate Security Nexus: Seven Pathologies Linking Climate Change to Violent Conflict. The Hauge Centre for Strategic Studies.

[3] Paul J. Smith, "Climate Change, Weak States and the 'War on Terrorism' in South and Southeast Asia," *Contemporary Southeast Asia* 29, no. 2 (August 2007): 272, https://doi.org/10.1355/CS29-2C.

[4] Sebastian van Baalen and Malin Mobjörk, "Climate Change and Violent Conflict in East Africa: Integrating Qualitative and Quantitative Research to Probe the Mechanisms," *International Studies Review* 20, no. 4 (December 1, 2018): 547–75, https://doi.org/10.1093/isr/vix043.

The four specific pathways listed above demonstrate how and under what conditions climate shocks, pressures, and variability may create environments that foster terrorist activity. Again, these pathways do not imply mono-casual or direct routes to violent conflict but rather offer evidence to support how the impacts of climate change may create enabling environments for radicalization to violent extremism and terrorism (See Rapid Review #3).

Evidence Review

Worsening Livelihood Conditions

When investigating the climate change-conflict relationship, examining a state's resiliency and its ability to adapt to climate-related impacts highly influences whether violence is an outcome or not and it is important to note that a region's resiliency is highly dependent on existing political, economic, and social conditions and factors.[5] To adequately and appropriately track a possible pathway from climate change to conflict it is valuable to examine how and if climate insecurities result in the worsening of livelihoods.[6] Evidence suggests that climate change produces environments where community's livelihoods are and will increasingly be less feasible. If a region lacks livelihood resilience, where vulnerabilities challenge the ability to change livelihoods as an adaption strategy, the risk of conflict increases.[7]

Livelihood insecurity is especially salient in weak or fragile states that are already suffering from a range of existing vulnerabilities. Climate change indirectly influences conflict, where it amplifies or compounds pre-existing economic, social, and political insecurities that are known contributors to violence.[8] Those most vulnerable include communities that are reliant on farming and agriculture as a means of survival. Specifically, the livelihoods in these regions are determined by the climate, their resources, and their minimal capacity to respond to climate pressures.[9] In other words, when regions are highly dependent on natural resources as a source of income and essential provisions and lack the capability to respond to climate-related consequences, their livelihoods are more extremely impacted by climate change. Climate shocks, such as droughts and floods, and climate variabilities, like soil degradation and desertification, can have detrimental effects in these communities where climate-related disasters can decrease the availability of natural resources, including water, land, livestock, and crops.[10]

Climate change is "an overarching destabilizing element that fosters the enabling environment for non-state actor terrorist groups"

Weak states that are susceptible to climate pressures are likely to encounter food and water insecurity, which can increase the risk of conflict.[11] Lack of resources can influence individuals' and groups' utilization of violence to protect or acquire remaining resources (i.e. resource competition).[12] Regions that are reliant on renewable natural resources may resort to communal conflict in response to the loss of outputs as a means to protect and/or access existing resources. As resources become more scarce, groups will compete for what remains.[13] Furthermore, with dwindling resources and population growth,

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[5] Andrea S Downing et al., "MANAGING CLIMATE RELATED SECURITY & DEVELOPMENT RISKS IN THE ANTHROPOCENE," n.d., 11.
[6] Dr Malin Mobjörk, "Pathways of Climate Insecurity: Guidance for Policymakers," n.d., 12.
[7] Carl Folke et al., "Resilience and Sustainable Development: Building Adaptive Capacity in a World of Transformations," *AMBIO: A Journal of the Human Environment* 31, no. 5 (August 2002): 437–40, https://doi.org/10.1579/0044-7447-31.5.437.
[8] Tarek Ghani and Robert Malley, "Climate Change Doesn't Have to Stoke Conflict," November 1, 2021, https://www.foreignaffairs.com/articles/ethiopia/2020-09-28/climate-change-doesnt-have-stoke-conflict.
[9] Smith, "Climate Change, Weak States and the 'War on Terrorism' in South and Southeast Asia."
[10] van Baalen and Mobjörk, "Climate Change and Violent Conflict in East Africa."
[11] Philippe Vitel, "CLIMATE CHANGE, INTERNATIONAL SECURITY AND THE WAY TO PARIS 2015," n.d., 15.
[12] Mobjörk, "Pathways of Climate Insecurity: Guidance for Policymakers."
[13] Sonja Ayeb-Karlsson et al., "A People- centred Perspective on Climate Change, Environmental Stress, and Livelihood Resilience in Bangladesh," *Sustainability Science* 11, no. 4 (July 2016): 679–94, https://doi.org/10.1007/s11625-016-0379-z.

groups with power collect surviving resources and shift the distribution, resulting in increased grievances towards elite groups (see elite pathway below).[14] As a result, VEOs can take advantage of increased grievances and growing inequalities.[15] For example, in East Africa, agricultural and pastoral communities heavily reliant on rainfall patterns are witnessing observable increases in communal and rebel conflicts occurring during periods of heavy rainfall.[16]

Of particular concern, climate pressures can damage (housing) infrastructure, farming, and agriculture, which can negatively impact employment and income.[17] Effects are especially detrimental when communities do not have the capacity to adopt alternative livelihoods. Affected groups may resort to illegal activities and/or join violent armed groups, including VEOs, to generate income if legal employment is no longer available.[18] For example, in Indonesia, piracy-related activities noticeably increased after observable decreases in revenue generated from fishing.[19] Oceanographic climate variation will influence the amount of fish caught and/or the number of feasible fishing trips. Furthermore, climate shocks, such as the 2011 typhoon in Indonesia, move fishermen closer to shore, further affecting the success of their trips. The decrease in legal income opportunities and the economy's reliance on the fishing industry factor into piracy as a viable adaptation strategy among fishermen.[20] Whether or not this type of violent adaptation strategy is viable in a climate change-terrorism pathway needs further investigation.

"As support for non-state violent groups increases and human securities are threatened, climate-change responses are further challenged, and the risk of terrorist activity and organized crime is heightened."

In another example, pastoralists in Kenya, that have lost income due to climate-related environmental changes are participating in violent activities, such as livestock raiding to adapt to their new circumstances. During dry months in the Turkana district, livestock raids tend to increase as pastoralists compete over limited resources and land.[21] When interviewed, raiders revealed that mutual cooperation was no longer beneficial as their livelihood was compromised.[22] Non-state actors can encourage local conflicts to strategically exacerbate instability and further weaken states. This grants non-state actors, like VEOs, the opportunity, and space to gain power, boost recruitment, and, ultimately, further their agenda.[23] Worsening livelihood conditions, including the lack of resources and employment opportunities, decreases the cost of engaging in violence.[24] As support for non-state violent groups increases and human securities are

[14] Thomas F. Homer-Dixon, "Environmental Scarcities and Violent Conflict: Evidence from Cases," *International Security* 19, no. 1 (1994): 5, https://doi.org/10.2307/2539147.
[15] Par Thomas Renard, "Heated Terror: Exploration of the Possible Impacts of Climate Change on the Causes and the Targets of Terrorism," n.d., 40.
[16] Clionadh Raleigh and Dominic Kniveton, "Come Rain or Shine: An Analysis of Conflict and Climate Variability in East Africa," *Journal of Peace Research* 49, no. 1 (January 2012): 51–64, https://doi.org/10.1177/0022343311427754.
[17] Sabine L. Perch-Nielsen, Michèle B. Bättig, and Dieter Imboden, "Exploring the Link between Climate Change and Migration," *Climatic Change* 91, no. 3–4 (December 2008): 375–93, https://doi.org/10.1007/s10584-008-9416-y.
[18] Pernilla Nordqvist and Florian Krampe, "Climate Change and Violent Conflict: Sparse Evidence from South Asia and South East Asia," n.d., 12.
[19] Sebastian Axbard, "Income Opportunities and Sea Piracy in Indonesia: Evidence from Satellite Data," *American Economic Journal: Applied Economics* 8, no. 2 (April 1, 2016): 154–94, https://doi.org/10.1257/app.20140404.
[20] Axbard, 155.
[21] Carol R. Ember et al., "Rain and Raids Revisited: Disaggregating Ethnic Group Livestock Raiding in the Ethiopian-Kenyan Border Region," *Civil Wars* 16, no. 3 (July 3, 2014): 300–327, https://doi.org/10.1080/13698249.2014.966430.
[22] Jürgen Scheffran et al., "Climate Change and Violent Conflict," *Science* 336, no. 6083 (May 18, 2012): 869–71, https://doi.org/10.1126/science.1221339.
[23] Kumar Ramakrishna, "Delegitimizing Global Jihadi Ideology in Southeast Asia," *Contemporary Southeast Asia* 27, no. 3 (December 2005): 343–69, https://doi.org/10.1355/CS27-3A; Nordqvist and Krampe, "Climate Change and Violent Conflict: Sparse Evidence from South Asia and South East Asia"; Jan Selby et al., "Climate Change and the Syrian Civil War Revisited," *Political Geography* 60 (September 2017): 232–44, https://doi.org/10.1016/j.polgeo.2017.05.007.
[24] Homer-Dixon, "Environmental Scarcities and Violent Conflict"; Jon Barnett and W. Neil Adger, "Climate Change, Human Security and Violent Conflict," *Political Geography* 26, no. 6 (August 2007): 639–55, https://doi.org/10.1016/j.polgeo.2007.03.003.

threatened, climate-change responses are further challenged and the risk of terrorist activity and organized crime is potentially heightened.

In addition to a lack of resources and employment, regions that lack governance capacity or capability to address climate change face an increased risk of conflict. While social, political, and economic inequalities are contributing factors to violence by themselves, climate change multiplies these threats.[25] For instance, climate shocks can reduce a government's ability to function in and be resilient to, emergency situations.[26] Specifically, in weak states that have heightened vulnerability, climate shocks create an additional strain for governments by introducing new financial burdens, increased human insecurity risks, and operational challenges. Alongside normal government functions, their response capabilities are affected by climate pressures, destroyed infrastructure, and inadequate basic safety measures resulting in diminished trust and support in the government.[27] When governments lack the capacity to respond to climate-related consequences, likely due to pre-existing vulnerabilities, it can aid in state failure.[28] As climate shocks, pressures, and variability become more frequent and intense, weak state infrastructure will be continually challenged, thus worsening the livelihoods of those affected.[29] As mentioned though, conflict is not an absolute result of climate pressures. Rather, a region or group's adaptive capacity is a key mechanism in mitigating the climate change-conflict pathway.[30]

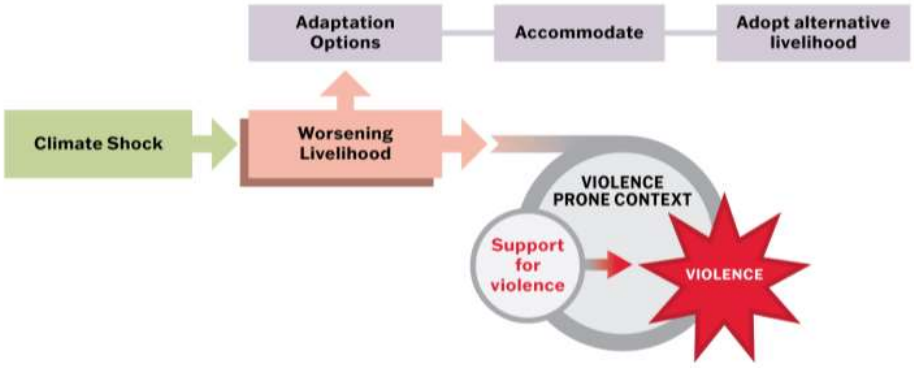
Existing vulnerabilities, fragile coping strategies, and capabilities that influence worsening livelihood conditions are determined by different social, political, and economic factors including history of violence and forced migration, marginalization, the strength of government legitimacy, level of dependence on renewable natural resources, and previous environmental impacts.[31] Researchers examine how exposure, vulnerabilities, and coping capacities interact together finding that many low-income countries residing in tropical zones are becoming warmer due to climate change, thus negatively impacting and limiting their agricultural outputs.[32] Their exposure to the equatorial climate and their pre-existing socio-economic status make them more vulnerable to climate-related impacts.

Livelihood insecurity, as a result of climate change, has the potential to create environments that foster varying forms of terrorist activity. When affected groups are not resilient and cannot adapt, the risk of conflict and violence increases. Further, climate shocks and variability will have a disproportionate impact on poorer, developing countries. Climate-related disasters will compound existing vulnerabilities further exacerbating other vulnerabilities like a lack of adequate governmental response.[33] Meanwhile, those capable will "adapt and recover from such environmental stress by modifying their agricultural practices, switching to alternative livelihoods, or using migration as an adaptive strategy."[34] However, it is possible

[25] Mobjörk, "Pathways of Climate Insecurity: Guidance for Policymakers"; Smith, "Climate Change, Weak States and the 'War on Terrorism' in South and Southeast Asia."
[26] Homer-Dixon, "Environmental Scarcities and Violent Conflict"; Raleigh and Kniveton, "Come Rain or Shine."
[27] "Climate Security Mechanism," accessed April 1, 2022, https://dppa.un.org/sites/default/files/csm_toolbox-1-briefing_note.pdf.
[28] Amar Causevic, "Facing an Unpredictable Threat: Is NATO Ideally Placed to Manage Climate Change as a Non-Traditional Threat Multiplier?," *Connections: The Quarterly Journal* 16, no. 2 (2017): 59–80, https://doi.org/10.11610/Connections.16.2.04.
[29] Jouni Paavola, "Livelihoods, Vulnerability and Adaptation to Climate Change in Morogoro, Tanzania," *Environmental Science & Policy* 11, no. 7 (November 2008): 642–54, https://doi.org/10.1016/j.envsci.2008.06.002; Jeeban Panthi et al., "Livelihood Vulnerability Approach to Assessing Climate Change Impacts on Mixed Agro-Livestock Smallholders around the Gandaki River Basin in Nepal," *Regional Environmental Change* 16, no. 4 (April 2016): 1121–32, https://doi.org/10.1007/s10113-015-0833-y; Hassnain Shah, Petra Hellegers, and Christian Siderius, "Climate Risk to Agriculture: A Synthesis to Define Different Types of Critical Moments," *Climate Risk Management* 34 (2021): 100378, https://doi.org/10.1016/j.crm.2021.100378.
[30] Ayeb-Karlsson et al., "A People- centred Perspective on Climate Change, Environmental Stress, and Livelihood Resilience in Bangladesh."
[31] van Baalen and Mobjörk, "Climate Change and Violent Conflict in East Africa."
[32] Causevic, "Facing an Unpredictable Threat."
[33] Smith, "Climate Change, Weak States and the 'War on Terrorism' in South and Southeast Asia."
[34] Ayeb-Karlsson et al., "A People- centred Perspective on Climate Change, Environmental Stress, and Livelihood Resilience in Bangladesh," 679.

that climate change's impact on less developed and developing countries may create a ripple effect for developed countries as well. This possibility needs to be further examined.

Figure 2: Livelihood Insecurity Pathway



Increasing Migration and Changing Mobility Patterns

The second climate-conflict pathway that informs the climate change-security-nexus is related to environmentally induced migration and climate-related changing mobility patterns. Migration is an adaptation strategy for those with worsening livelihoods, lack of access to necessary resources, the capabilities shift to alternative livelihoods, and/or the increased impacts of climate change.[35] Whether is it a short-term or long-term strategy, migration affords a chance to search for areas that present more viable economic, social, and political opportunities.[36]

Following devastating climate shocks, exposed and vulnerable populations will often choose or are often forced to migrate. Several environmental, economic, and socioeconomic push and pull factors contribute to an individual's motivations or necessity to migrate.[37] Worsening livelihood conditions act as push factors in the decision to migrate, and the promise of improved livelihoods, including viable employment, safety, family unification, stability, and favorable immigration policies, are pull factors that influence migration into a particular region.[38]

Populations that "use migration to deal with permanent loss of livelihood…[or] help overcome temporary livelihood insecurities" are largely resource-dependent populations and those experiencing livelihood insecurity.[39] Less developed countries are particularly at risk because climate-related disasters can compound already existing vulnerabilities. With added stressors to a state's infrastructure, government capacity to support modifying livelihoods as an adaptation strategy are generally not feasible.[40]

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[35] Mobjörk, "Pathways of Climate Insecurity: Guidance for Policymakers"; Ayeb-Karlsson et al., "A People-centred Perspective on Climate Change, Environmental Stress, and Livelihood Resilience in Bangladesh."
[36] Raleigh and Kniveton, "Come Rain or Shine"; Ayeb-Karlsson et al., "A People- centred Perspective on Climate Change, Environmental Stress, and Livelihood Resilience in Bangladesh"; Richard Black et al., "Migration as Adaptation," *Nature* 478, no. 7370 (October 2011): 447–49, https://doi.org/10.1038/478477a; Barnett and Adger, "Climate Change, Human Security and Violent Conflict."
[37] Satchit Balsari, Caleb Dresser, and Jennifer Leaning, "Climate Change, Migration, and Civil Strife," *Current Environmental Health Reports* 7, no. 4 (December 2020): 404–14, https://doi.org/10.1007/s40572-020-00291-4; Ayeb-Karlsson et al., "A People- centred Perspective on Climate Change, Environmental Stress, and Livelihood Resilience in Bangladesh."
[38] L. Perch-Nielsen, B. Bättig, and Imboden, "Exploring the Link between Climate Change and Migration"; Reuveny, "Climate Change-Induced Migration and Violent Conflict."; Reuveny, "Climate Change-Induced Migration and Violent Conflict."
[39] Ayeb-Karlsson et al., "A People- centred Perspective on Climate Change, Environmental Stress, and Livelihood Resilience in Bangladesh," 689.
[40] Reuveny, "Climate Change-Induced Migration and Violent Conflict."

Thus, populations will look to migrate to resource-rich environments that provide new employment opportunities and perceived safety, oftentimes to urban areas.[41] In fact, climate change has increased rural-urban migration at an increasingly quick pace as a result of the loss of economic opportunities in rural areas. Urban areas can offer opportunistic livelihoods for rural communities but also sustain a significant level of inequality.[42] Consequently, rural-urban migration may induce high marginalization in host regions which may prompt communal conflict and increased grievances if states cannot adequately respond to an influx of migrants.[43] Growing urbanization, due to climate change, invites terrorist activities given the unstable environment following a large migration (See Rapid Review #2 and #3).[44]

Ultimately, Climate shocks that cause infrastructure damage and diminish or decimate natural resources can result in economic insecurities, like loss of income and economic decline, that drive migration.[45] For instance, mass migration from Bangladesh to India occurred after suffering decades of land degradation and erosion and water and food scarcity that was further exacerbated by several climate shocks. When livelihood and adaptation strategies failed, 12 - 17 million Bangladeshis migrated to India, and a million were internally displaced.[46]

"Migrating for economic opportunities will be more common for populations that are dependent on agriculture and farming in less developed countries that struggle to overcome climate-related disasters".

According to past research, there are four overarching factors that influence the relationship between migration and conflict:

- **Competition:** Competition occurs when the arrival of migrants overwhelms the supply of renewable natural resources. This is likely in situations of high levels of migration and/or the receiving areas are less developed and resource-dependent regions themselves. Oftentimes, an influx of migrants can overwhelm the availability of resources.[47]
- **Ethnic tension:** Conflict is a more likely outcome when migrants and host residents belong to different social or ethnic groups. When environmental impacts influence decisions to migrate, populations of differing religious and ethnic backgrounds are forced to interact, which may increase social tensions.[48] Migration, particularly in vulnerable regions, can influence livelihood insecurity within the receiving state, thus provoking internal conflict.[49] Interestingly, the research found that a majority of intra-state migrations did not result in conflict.
- **Distrust:** Feelings of distrust may arise as a result of climate-induced migration. Distrust is often related to social and ethnic tensions amongst populations now competing for reduced resources (like land and water). Opposed groups will likely develop a sense of skepticism as tensions rise.[50]

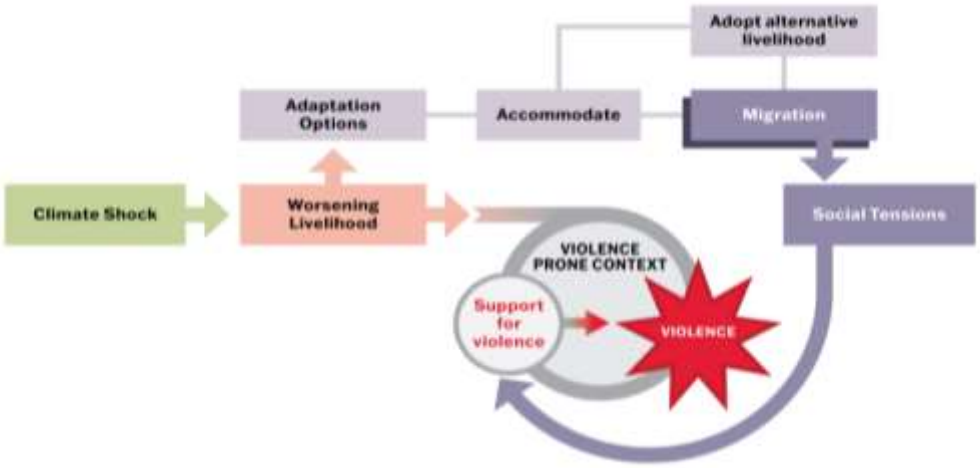
[41] Kanta Kumari Rigaud et al., "DEEP DIVE INTO INTERNAL CLIMATE MIGRATION IN TANZANIA," n.d., 120.
[42] Rigaud et al.
[43] Renard, "Heated Terror: Exploration of the Possible Impacts of Climate Change on the Causes and the Targets of Terrorism."
[44] Renard.
[45] L. Perch-Nielsen, B. Bättig, and Imboden, "Exploring the Link between Climate Change and Migration."
[46] Reuveny.
[47] Reuveny.
[48] Mobjörk, "Pathways of Climate Insecurity: Guidance for Policymakers."
[49] Rigaud et al., "DEEP DIVE INTO INTERNAL CLIMATE MIGRATION IN TANZANIA."
[50] Reuveny, "Climate Change-Induced Migration and Violent Conflict."

- **Fault lines:** Conflict may ensue over socioeconomic and/or rural to urban fault lines. Fault lines are specific attributes that subdivide groups.[51] As climate change drives migration, more diverse groups come into contact, increasing the potential for divisiveness and, potentially conflict.[52]

The four factors together with auxiliary conditions, including less developed economies, exposure to environmental disasters, dependence on natural renewable resources, history of conflict, and the infrastructure to manage in-migration, may increase the risk of conflict.[53]

It is important to note that while climate shocks commonly prompt immediate migration, climate variability occurs over time, making it difficult to predict and measure.[54] Very little empirical research has explored the relationship between climate variability, migration patterns, and violence. A majority of the literature focuses on short-term impacts of climate change, therefore ignoring the risk of violence over a long period of time and often explained away by factors outside of climate change.[55] Overall, while many scholars theorize that climate change-induced migration increases the risk of violence, this pathway lacks verifiable evidence and is shrouded in unknowns. However, migration and mobility patterns have in the past played a critical role in violent outbreaks and this may be an exploitable area for VEOs (See Rapid Review #3).[56]

Figure 3: Migration and Mobility Pathway



Exploitation by Elites and Resource Management

The third climate-conflict pathway of relevance is related to elite exploitation and elite mismanagement of resources. A region experiencing climate change invites elites, who often control essential resources and markets, to exploit existing instability created by climate shocks and pressures to serve their interests, often at the expense of others.[57] Evidence suggests that climate insecurities can engender and foster

[51] Dora C. Lau and J. Keith Murnighan, "Demographic Diversity and Faultlines: The Compositional Dynamics of Organizational Groups," *The Academy of Management Review* 23, no. 2 (April 1998): 325, https://doi.org/10.2307/259377.
[52] Reuveny, "Climate Change-Induced Migration and Violent Conflict."
[53] Reuveny; Balsari, Dresser, and Leaning, "Climate Change, Migration, and Civil Strife."
[54] van Baalen and Mobjörk, "Climate Change and Violent Conflict in East Africa."
[55] Mobjörk, "Pathways of Climate Insecurity: Guidance for Policymakers."
[56] Reuveny, "Climate Change-Induced Migration and Violent Conflict."
[57] van Baalen and Mobjörk, "Climate Change and Violent Conflict in East Africa."

grievances, towards the state or out-groups allowing elites to capitalize on formed grievances to further personal agendas, often for profit.[58]

In particular, this pathway can be understood through marginalized groups' feelings of absolute and relative deprivation following climate shocks and pressures and how these feelings manifest themselves into grievances. When elites exploit environmental, political, and socioeconomic insecurities that result from climate change, it can provoke feelings of relative and absolute deprivation within marginalized populations.

- **Absolute deprivation** emerges when groups lack the basic necessities to survive, while
- **Relative deprivation** occurs when there is a gap between expected livelihood experience and reality.[59]

Grievances towards other social groups, especially outgroups, or inter-group grievances, are more likely produced by a sense of relative deprivation. Feelings of relative deprivation are likely to arise when elites' lives improve, while marginalized populations' livelihoods decline.

Elites also form connections with government representatives to establish legitimacy for controlling resource distribution.[60] For example, grievances among Muslims in Xinjiang Province in China developed when the government facilitated irrigation and agricultural upgrades strategically in areas where Han Chinese immigrants resided, fueling feelings of relative deprivation.[61] Distributing limited resources to powerful or in-favor groups exclusively perpetuates existing poverty and environmental damage.[62]

"While small-scale conflicts are often the outcome of climate shocks, state elites play a critical role in that pathway from local conflicts to large-scale violence."

Grievances towards the government, or anti-state grievances, materialize when the government lacks the capacity and capability to alleviate the impacts of climate change. Anti-state grievances likely exacerbate absolute or relative deprivation as weak governance cannot address or remedy the negative consequences of climate change. Groups resent the government for not only fostering an environment where elites overwhelmingly succeed but also failing to provide affected populations with basic needs. Anti-state grievances can undermine the legitimacy of the government. Thus, state elites are motivated to grow and secure their own support system, while weakening their opposition.[63] To distract from their inability to effectively and efficiently address climate-related consequences, state elites often exploit existing tensions and political discord by encouraging inter-group conflict.[64] Therefore, individuals channel their grievances towards other social groups rather than the regime. Demonstrated in Kenya in the 1990s, the Moi regime instigated ethnic violence to undermine the call for democracy. The government worked along Moi to exacerbate existing land grievances, cause group conflict, and safeguard the government's power.[65]

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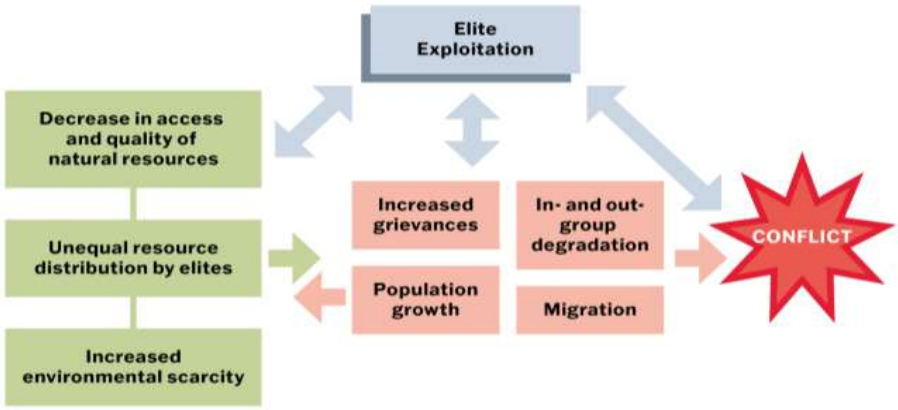
[58] Colin H. Kahl, "Population Growth, Environmental Degradation, and State-Sponsored Violence: The Case of Kenya, 1991-93," *International Security* 23, no. 2 (1998): 80–119, https://doi.org/10.2307/2539380.
[59] Edward Anderson and Lucio Esposito, "On the Joint Evaluation of Absolute and Relative Deprivation," *The Journal of Economic Inequality* 12, no. 3 (September 2014): 411–28, https://doi.org/10.1007/s10888-013-9262-7.
[60] van Baalen and Mobjörk, "Climate Change and Violent Conflict in East Africa"; Stathis N. Kalyvas, *The Logic of Violence in Civil War* (Cambridge: Cambridge University Press, 2006), https://doi.org/10.1017/CBO9780511818462.
[61] Kahl, "Population Growth, Environmental Degradation, and State-Sponsored Violence."
[62] Homer-Dixon, "Environmental Scarcities and Violent Conflict."
[63] V. P. Gagnon, "Ethnic Nationalism and International Conflict: The Case of Serbia," *International Security* 19, no. 3 (1994): 130, https://doi.org/10.2307/2539081.
[64] Kahl, "Population Growth, Environmental Degradation, and State-Sponsored Violence."
[65] Kahl.

When the government's power is threatened, state elites may strategically incite inter-group violence to undermine their opponents and validate their legitimacy. Although local, small-scale conflicts tend to be a consequence of climate shocks and pressures,[66] communal conflicts can escalate into large-scale violence through elite manipulation. Specifically, elites can exploit existing inter-group grievances and use them to recruit individuals to support violence.[67] For example, elite exploitation of grievances is demonstrated by Rezaigat camel nomads in Darfur who, before the droughts in the 70s and 80s, had mutually benefiting relationships with local farmers.[68] The negative impacts of droughts led to local land disputes and provoked grievances among farmers and the Rezaigat. Grievances soon escalated to large-scale violence when the government capitalized on the Rexaigat's grievances towards local groups and recruited them to enact violence.[69]

Climate shocks that highly impact environmental security can create environments that invite elite exploitation. Feelings of relative and absolute deprivation influence grievances towards social groups and state elites. While small-scale conflicts are often the outcome of climate shocks, state elites play a critical role in the pathway from local conflicts to large-scale violence.[70] Through existing tensions or inciting communal conflict, state elites have mobilized vulnerable individuals into conflict. How this relates to VEOs ability to exploit vulnerable individuals as well as an important future area of research.

Figure 4: Elite Exploitation Pathway



Tactical Considerations by Violent Non-State Actors

Contrary to the previous pathways that track how climate-related consequences may result in a heightened risk of violence, the third pathway which considers tactical considerations by violent non-state actors examines how climate pressures and variability creates an environment that may facilitate actual terrorist activity as a unique form of political violence[71]. It is important to note that this pathway is not deterministic, and, at times, climate shocks and pressures have been known to decrease violent non-state actors' presence. Other factors such as location, the strength of the military, governmental strength,

[66] Halvard Buhaug, "Climate–Conflict Research: Some Reflections on the Way Forward," *WIREs Climate Change* 6, no. 3 (May 2015): 269–75, https://doi.org/10.1002/wcc.336.
[67] Mobjörk, "Pathways of Climate Insecurity: Guidance for Policymakers."
[68] Adam Mohammed, "The Rezaigat Camel Nomads of the Darfur Region of Western Sudan: From Co-Operation to Confrontation," *Nomadic Peoples* 8, no. 2 (December 1, 2004): 233, https://doi.org/10.3167/082279404780446087.
[69] Mohammed, "The Rezaigat Camel Nomads of the Darfur Region of Western Sudan."
[70] Buhaug, "Climate–Conflict Research."
[71] van Baalen and Mobjörk, "Climate Change and Violent Conflict in East Africa."

and available resources will determine a violent non-state actor's activity in a region.[72] Nevertheless, according to scholars, climate change impacts can influence violent non-state actors' tactical decisions in three broad ways:[73]

- Controlling resource distribution:
- Recruitment strategies
- Adopting "opportunistic behavior"

Controlling Resource Distribution

Similar to elite groups, violent non-state actors exploit vulnerabilities to control natural resources and ensure livelihood security for their members when climate shocks and variabilities reduce or destroy natural resources.[74] Whether it be land, water, or food scarcity, violent non-state actors will alter their strategies to acquire surviving resources after a climate shock.[75] Moreover, scarcity justifies the use of violence by violent non-state actors in accomplishing their goals.[76] For instance, climate shocks that affect agricultural production invite intimidation by violent non-state actors who often do not produce their own food but depend on intentional or forced contributions from populations.[77]

Following severe droughts that affect agricultural outputs, violent non-state actors have been known to participate in land grabbing as a means to secure and control natural resources. Violence is most often used or escalated when violent non-state actors do not mutually benefit or cooperate with inhabitants.[78] Violent non-state actors, such as Al Shabaab, Naxalite rebels, and Barisan Revolusi Nasional-Coordinate (BRN-C) rebels, have all used violent tactics, including terrorism, to ensure their access to resources. After a drought in 2011, Al Shabaab violently captured food supplies from local communities.[79] Similarly, during a 2004 drought, farmers in Songkhla province, Thailand hoarded rice to keep it out of the hands of the BRN-C. In response, BRN-C resorted to violence to push local farmers off their rice farms and took the remaining rice to establish food security.[80] These acts of violence committed by non-state violent actors were not only to ensure food security but instill fear.[81]

Recruitment Strategies

Along with controlling resource distribution, violent non-state actors may exploit stressors created by climate change to encourage recruitment (see rapid review #3). Evidence suggests that deteriorating livelihoods from climate-related impacts make individuals susceptible to recruitment by violent non-state actors.[82] When climate change significantly affects resource-dependent livelihoods, individuals may turn

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[72] Mobjörk, "Pathways of Climate Insecurity: Guidance for Policymakers," 6.
[73] Nordqvist and Krampe, "Climate Change and Violent Conflict: Sparse Evidence from South Asia and South East Asia."
[74] Nordqvist and Krampe.
[75] Mobjörk, "Pathways of Climate Insecurity: Guidance for Policymakers."
[76] Benjamin E. Bagozzi, Ore Koren, and Bumba Mukherjee, "Droughts, Land Appropriation, and Rebel Violence in the Developing World," *The Journal of Politics* 79, no. 3 (July 2017): 1057–72, https://doi.org/10.1086/691057.
[77] Henk-Jan Brinkman and Cullen S Hendrix, "Food Insecurity and Violent Conflict: Causes, Consequences, and Addressing the Challenges," 2011, 4, https://doi.org/10.13140/2.1.3379.2003.
[78] Bagozzi, Koren, and Mukherjee, "Droughts, Land Appropriation, and Rebel Violence in the Developing World."
[79] James Hansen et al., "Climate Sensitivity, Sea Level and Atmospheric Carbon Dioxide," *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 371, no. 2001 (October 28, 2013): 20120294, https://doi.org/10.1098/rsta.2012.0294.
[80] Jasjit Singh, "Kashmir, Pakistan and the War by Terror," *Small Wars & Insurgencies* 13, no. 2 (August 2002): 81–94, https://doi.org/10.1080/09592310208559183.4/26/2022 3:00:00 PMBenjamin E. Bagozzi, Ore Koren, and Bumba Mukherjee, "Droughts, Land Appropriation, and Rebel Violence in the Developing World," *The Journal of Politics* 79, no. 3 (July 2017): 1057–72, https://doi.org/10.1086/691057.
[81] Bagozzi, Koren, and Mukherjee, "Droughts, Land Appropriation, and Rebel Violence in the Developing World."
[82] "Climate Security Mechanism."

to violent non-state actors to provide for themselves and their families.[83] These mechanisms, together, provide opportunities for violent non-state actors to plan and engage in further terrorist activities.[84]

Though climate change does not directly cause terrorism, it creates ample opportunities for violent non-state actors to further their agenda in different ways. To illustrate, Sunni Iraqis were grappling with severe environmental stress and anti-state grievances due to a long-lasting drought throughout the 2000s. In turn, the al-Nusrah Front and the Islamic State (IS) exploited these grievances as a tactic to recruit many Sunni Iraqis. The climate shock allowed them to increase their presence and grow in size.[85] Non-state violent groups are more likely to gain support when individuals and/or groups seek outlets for their state grievances. Regions that are more unstable offer non-state violent groups a plethora of vulnerabilities that may increase recruitment.[86]

Adopting "Opportunistic Behavior"

Lastly, tactical considerations of violent non-state actors are shaped by opportunities created by climate shocks and pressures. As climate-related changes influence environmental, economic, and structural breakdowns, violent non-state actors will adapt behaviors in response to new environments, aiming to produce more favorable circumstances for themselves.[87] Climate change allows violent non-state actors to strategically develop new tactical considerations.[88] For example, livestock raiding in Ethiopia, Kenya, and Uganda is more common in wet seasons when vegetation obscures stolen cattle and the extensive rainfall erases footprints.[89] Violent non-state actors can react to changing climatic conditions and for example, use the weather to disguise movement.[90]

Moreover, failed state responses to climate change, award VEOs the opportunity to gain influence over individuals and regions they otherwise would not have. For instance, in regions that lack strong governance, violent non-state actors seek to provide aid and assistance to vulnerable populations.[91] In these cases, violent non-state actors are exploiting groups and individuals' growing anti-state grievances by fulfilling traditional state roles. Thus, vulnerable populations become somewhat dependent and are indebted to violent non-state actors. While weak governance can create space for terrorist activity, violent non-state actors' tactics are conditional on the capacity and presence of the state, non-state, and opposing groups.[92] Tactical considerations of violent non-state actors are an essential factor in the climate-security-nexus and can be in a potential climate-terrorism pathway. As climate change progresses, the frequency and amplitude of climate shocks and pressures will increase, thus providing violent non-state actors with ample opportunity to commit and instigate violent conflict, and potential acts of terror. Resource scarcity, economic deprivation, and reduced state capacity will be significantly impacted by future climate events, causing an increase in concerns over the likelihood of terrorist activities.[93] Despite this pathway varying across contexts, there is evidence that violent non-state actors use climate-related conflict to their advantage, thus posing a real threat to security.

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[83] Axbard, "Income Opportunities and Sea Piracy in Indonesia."4/26/2022 3:00:00 PM"Climate Security Mechanism."
[84] Ramakrishna, "Delegitimizing Global Jihadi Ideology in Southeast Asia."
[85] Marcus DuBois King, "The Weaponization of Water in Syria and Iraq," *The Washington Quarterly* 38, no. 4 (October 2, 2015): 153–69, https://doi.org/10.1080/0163660X.2015.1125835.
[86] Renard, "Heated Terror: Exploration of the Possible Impacts of Climate Change on the Causes and the Targets of Terrorism."
[87] Renard, 16.
[88] van Baalen and Mobjörk, "Climate Change and Violent Conflict in East Africa"; Selby et al., "Climate Change and the Syrian Civil War Revisited."
[89] Raleigh and Kniveton, "Come Rain or Shine."
[90] van Baalen and Mobjörk, "Climate Change and Violent Conflict in East Africa."
[91] Mobjörk, "Pathways of Climate Insecurity: Guidance for Policymakers."
[92] Colin Walch, "Weakened by the Storm: Rebel Group Recruitment in the Wake of Natural Disasters in the Philippines," *Journal of Peace Research* 55, no. 3 (May 2018): 336–50, https://doi.org/10.1177/0022343317741535.
[93] Raleigh and Kniveton, "Come Rain or Shine"; Smith, "Climate Change, Weak States and the 'War on Terrorism' in South and Southeast Asia."

Bottom Line Summary

In sum, the present evidence does not support a direct causal link between climate change and terrorist activity. However, evidence suggests that the impacts of climate change create conditions that support violent contexts, including acts of terror. Climate change is increasingly understood to be a destabilizing force that enables VEOs to consider new strategies and tactics to achieve their objectives. Importantly, a future focus on the climate change-terrorism-nexus has a growing reach beyond less-developed nations and regions directly exposed to climate shocks and variability:

- **Accelerated urbanization is likely going to affect developed countries** as rapid population growth in less-developed countries seeks better opportunities in developed countries and communal conflict heightens. As a result, VEOs may exploit conflicts and instabilities in receiving countries.

- **Developed nations may need to offer aid and assistance to less-developed nations** as government infrastructure is overwhelmed by climate change, possibly leading to state failure.

- **Research on climate change's influence on terrorism is even more imperative given the impending danger of more frequent and intense climate shocks and pressures**, thus putting regions and groups' political, environmental, and human security at risk. Specifically, heightened climate risks will allow VEOs to strategically develop new tactical considerations.

Recommendations

While scholars continue to highlight the importance of the relationships between climate change and conflict, less is known about the relationships between climate change and terrorism. Therefore, the following three recommendations offer ways to advance research on the interactions between climate change and terrorism:

- Though it is evident that migration and mobility patterns play a critical role in violent conflict, **large-scale and long-term impacts are often explained away by factors not relating to climate change.** This pathway and relationship need greater attention in the future.

- Climate shocks and variability will have **disproportionate impacts on poor, underdeveloped, and developing countries where varying levels of fragility exist**. Climate-related disasters and stress will likely compound existing vulnerabilities further exacerbated by possible inadequate governmental responses. It would be beneficial to advance research on if, and how, these pathways apply to other regions of interest, like more developed economies.

- Researchers should seek to **leverage criminology to explore affected group pathways into illegal activity.** Criminologists have extensively studied the economic and crime relationship through conflict theories, subcultural theories, opportunity theories, and strain and social disorganization theory.

Suggested Data Sources

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ABOUT THIS RAPID REVIEW

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ABOUT START

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