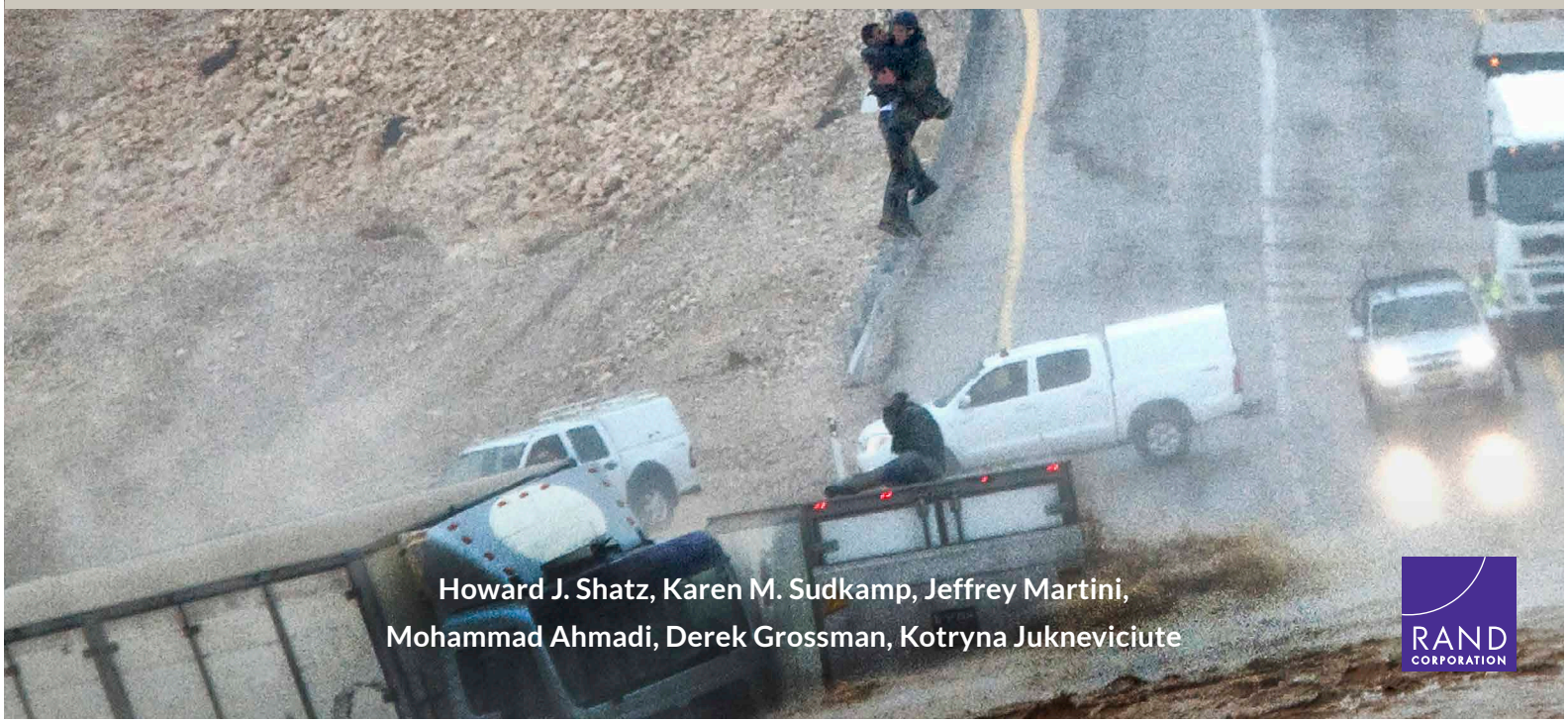
RESEARCH REPORT

Mischief, Malevolence, or Indifference

HOW ADVERSARIES CONSIDER CLIMATE-RELATED CONFLICT IN U.S. CENTRAL COMMAND



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ABOUT THIS REPORT

THIS REPORT PRESENTS an analysis of how U.S. competitors China and Russia and primary regional adversary Iran could attempt to exploit climate-related conflict in the U.S. Central Command (CENTCOM) area of responsibility (AOR). The findings rely on a scenario-based workshop held to elicit responses from subject-matter experts and a literature review.

This report is the fourth in a series stemming from a larger project to consider the effects of climate change on the security environment in the region. The first report, *A Hotter and Drier Future Ahead: An Assessment of Climate Change in U.S. Central Command*, presents an analysis of projected climate effects in the CENTCOM AOR in 2035, 2050, and 2070. The second report, *Pathways from Climate Change to Conflict in U.S. Central Command*, details causal pathways from climate change to conflict, including cases in which those pathways have played out in the CENTCOM AOR. *Conflict Projections in U.S. Central Command: Incorporating Climate Change*, the third report in the series, presents a range of forecasts of future conflict in the region, and climate change is incorporated as one driver of that conflict. The fifth and final report, *Defense Planning Implications of Climate Change for U.S. Central Command*, examines off-ramps to climate-related conflict and the operations, activities, and investments that are needed for CENTCOM to execute, given climate effects on the security environment. The primary audience for these reports is CENTCOM leadership, planners, and intelligence officers. The research reported here was completed in May 2023 and underwent security review with the sponsor and the Defense Office of Prepublication and Security Review before public release.

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Finally, we thank the experts who participated in the roundtable discussion. They were promised anonymity to encourage a candid exchange of views, and we are indebted to them for sharing their knowledge. All errors remain the responsibility of the authors.

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KEY FINDINGS

CLIMATE CHANGE could be intertwined with a variety of conflicts in the U.S. Central Command (CENTCOM) area of responsibility, ranging from civil unrest to intrastate wars and even to interstate wars. To understand how U.S. competitors and adversaries might take advantage of such conflicts, the RAND Corporation hosted a two-day workshop in February 2023. The workshop presented nine scenarios with different climate hazards and levels of conflict to a panel of 11 experts who were knowledgeable about the overall global strategy, interests, and capabilities of China, Russia, and Iran.

- China, Russia, and Iran would approach climate-related conflict in much the same way that they approach other conflicts. China and Russia generally attempt to seek diplomatic solutions rather than become militarily involved, whereas Iran uses its unconventional capabilities in conflicts. Climate hazards can make a difference in the causes of the conflicts that might erupt and in the secondary and tertiary consequences of those conflicts.
- The regional experts did not engage with climate-specific policy tools in their proposed responses, regardless of whether those tools could be used as sticks or carrots. However, the scenarios illustrated that China and Russia have a set of new climate-related tools—green energy capabilities and new trade routes, respectively—to use in relationships with regional countries. Furthermore, Russia might gain arable land and increased agricultural yields, enhancing its ability to use food exports to achieve policy goals. These tools will likely become more important as climate change develops.
- Even in an era of strategic competition, China and Russia continue to view the region as a priority, with stability the element of utmost importance. The regional experts noted that although Beijing and Moscow were unlikely to challenge Washington directly, they would take advantage of any absence of the United States in the region. One area in which China in particular can take advantage is humanitarian assistance and disaster response operations. Regional states might judge the climate-related actions of external powers as signals of their commitment to regional security and the importance of the region in their foreign and economic policies.
- China and Russia have made concerted efforts to avoid choosing sides among different countries involved in conflicts. Given the United States' extensive security commitments and agreements, the potential for climate-related interstate conflicts across the seams of the geographic combatant command could force the United States to make difficult policy decisions on how to support long-standing partners and allies that might be at odds and that are located in different areas of responsibility.
- Climate literacy among regional experts would benefit from improvement. The regional specialists at the workshop did not actively engage with climate expertise during the execution of the workshop. Further education related to climate change and its projected effects on the physical and security environment is necessary for military planners, operators, and intelligence professionals.

CHAPTER 1

INTRODUCTION

CLIMATE CHANGE IS projected to affect both the physical and security environment of the U.S. Central Command (CENTCOM) area of responsibility (AOR) significantly throughout the 21st century. How climate change might do this and with what consequences, especially for security, are important issues for security planners. The consequences include opportunities for U.S. competitors and adversaries to seek advantages relative to the United States, which is the focus of this report.

This report is the fourth in a series of five stemming from a project to consider the effects of climate change on the security environment in the CENTCOM AOR. Climate change will manifest in the compounding effects of higher temperatures and increased drought and dryness, leading to greater water scarcity in the region, according to analysis presented in the first report, *A Hotter and Drier Future Ahead: An Assessment of Climate Change in U.S. Central Command*.[1]

The second and third reports address how climate could contribute to future conflict in the AOR. The analysis found that climate hazards can act as a threat multiplier, interacting with other drivers of conflict to increase the incidence or intensity of conflict. In the second report, *Pathways from Climate Change to Conflict in U.S. Central Command*, we identified causal pathways that often begin with climate hazards and result in a form of insecurity (e.g., food, livelihood, physical, or health). That insecurity then combines with weaknesses in state capacity, population flows, and other factors to culminate in conflict when filtered through individual and armed group incentives to mobilize around greed or grievance.[2]

Building on that research, we used a machine learning framework to generate conflict projections for the AOR up to 2070. *Conflict Projections in U.S. Central Command: Incorporating Climate Change*, the third report in the series, focuses on the frequency of conflict in the AOR. We found that, under a range of socioeconomic and climate conditions, CENTCOM is projected to experience substantial conflict in the coming half century. While there is suggestive evidence that worse climate outcomes will correlate with a greater incidence of conflict between 2040 and 2060, temperature increases and declines in precipitation are not the major drivers in the security environment, according to our modeling. However, there are good reasons to believe that the existing research and our own conflict forecasts might be underestimating the consequences of climate variables on conflict because they are based on linear extrapolations from historical patterns.[3]

With the CENTCOM AOR as the site of competition among major external powers, our research then used expert elicitation to consider how U.S. competitors China and Russia and primary regional adversary Iran could attempt to exploit climate change to advance their own security interests in the theater. The workshop through which we conducted this elicitation built on the research and analysis conducted in the three previous reports in this series, as illustrated in Figure 1.1.

Regardless of whether senior policymakers choose to deepen U.S. involvement in the theater because of the consequences of climate change, CENTCOM and its interagency partners must be prepared to engage across the spectrum of conflict. Planners should also be aware that the expert elicitation illustrated that climate change and climate-related conflicts in the AOR could serve as plausible entry points for the United States' leading competitors—China and Russia—as well as its regional adversary—Iran—to gain advantages in the region, exacerbate tensions, undermine U.S. interests, and challenge U.S. influence.

Figure 1.1. Progression of Reports in this Series

Building on reports one through four, the final report in our series investigates ways CENTCOM, U.S. interagency partners, and foreign partners can build resilience to climate stress by identifying off-ramps along the climate-to-conflict causal pathway. Additionally, the fifth report presents operations, activities, and investments (OAIs) that CENTCOM and foreign partners can undertake to mitigate the effects of climate hazards.[4]

The CENTCOM AOR consists of 21 countries, stretching from Egypt in the west through the Levant, the Arabian Peninsula, and Iran to Central Asia and Pakistan in the east. The command divides the AOR into three subregions (Figure 1.2):

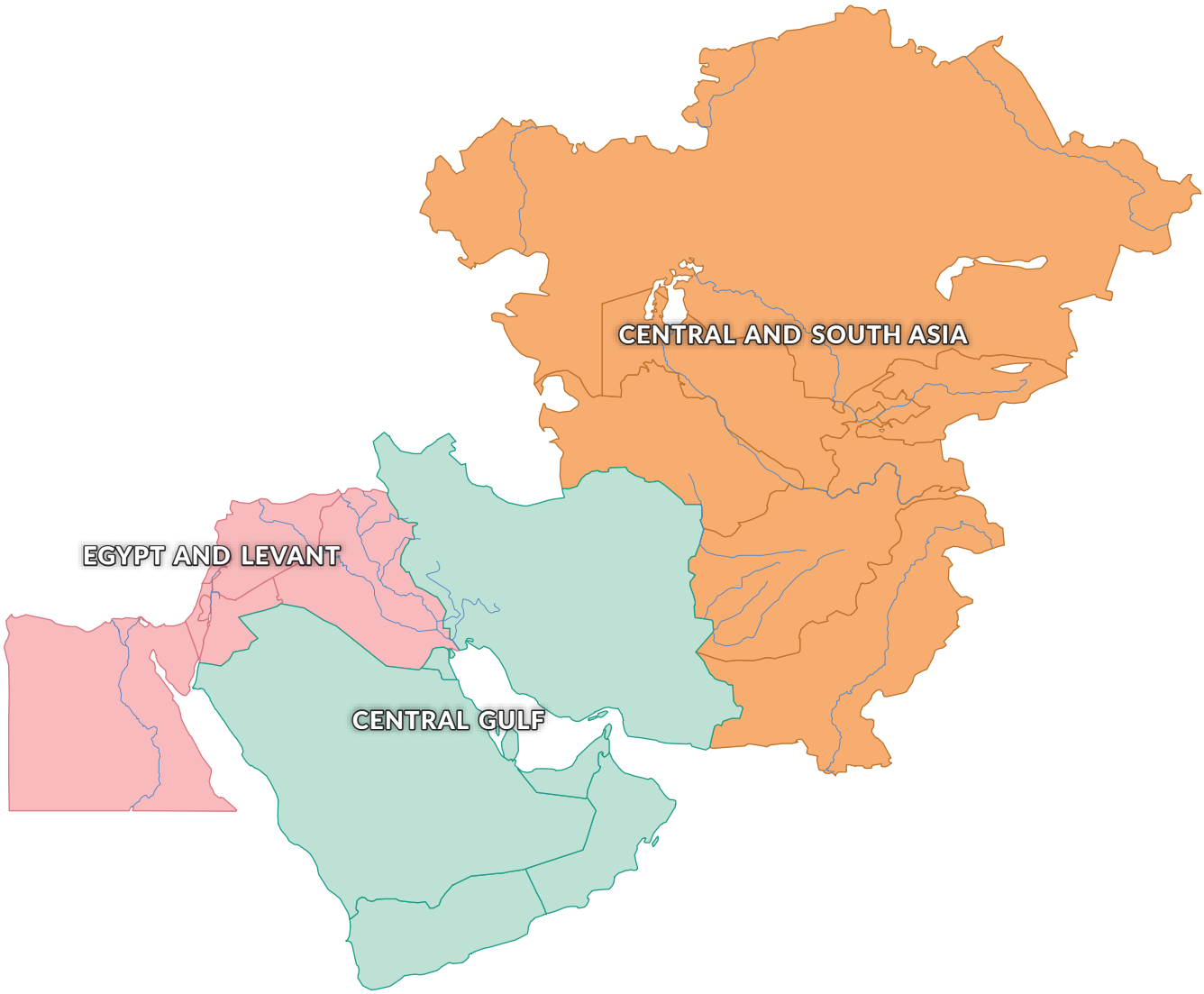
- Levant and Egypt: Egypt, Iraq, Israel, Jordan, Lebanon, and Syria
- Central Gulf: Bahrain, Iran, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates (UAE), and Yemen
- Central and South Asia: Afghanistan, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan.

Historically, the Middle East and Central and South Asia have been locations of great-power competition. In the first decades of the 21st century, this competition has risen to higher prominence for the United States because of China's emergence as the world's second-largest national economy, Russia's more aggressive political actions, and an impression by many observers that U.S. interest in the region is waning.[5] Box 1.1. discusses enduring U.S. interests in the region.

For CENTCOM, the miliary command responsible for the region, strategic competition with China and Russia is now its third highest priority, following the deterrence of Iran and countering violent extremist organizations. As noted by CENTCOM Commander General Michael "Erik" Kurilla, "China's economic interests, transactional approaches and perceived lack of Chinese bias in internal and regional affairs, will continue to provide [Beijing] inroads in the region."[6] As for Russia, its traditional role in Central Asia, combat deployment to Syria, oil price cooperation with the Organization of Petroleum Exporting Countries, and growing relationship with Iran are visible signs of the country's designs for the region.

Climate change and strategic competition intersect in the region. Climate change could exacerbate existing security challenges or create additional security challenges that could create new requirements in the theater. Regional states are likely to judge the responses of the United States, China, and Russia to

Figure 1.2. The U.S. Central Command Area of Responsibly



SOURCE: RAND-designed graphic based on email communications with CENTCOM, October 12, 2022.

these security challenges as signals of each major power's commitment to regional security. To explore the interactions of climate change, security challenges, and strategic competition, the RAND Corporation organized a two-day expert workshop to explore how U.S. global competitors China and Russia and the United States' primary regional adversary Iran might take advantage of climate-related conflict. This report provides the results of that workshop.

Box 1.1. U.S. Interests in the U.S. Central Command Area of Responsibility

The United States has had a consistent set of priorities that are critical to U.S. economic and security objectives in the CENTCOM AOR.

- First, the United States has sought to ensure the free flow of oil, not specifically for its own use but for its partners in Asia and Europe, with the broader goal of maintaining a stable international energy market. Relatedly, the United States has worked to guarantee the freedom of navigation in the region, given the region's location as a central node in global trade with several choke points.
- Second, a key U.S. interest since at least 2001 has been preventing and combatting terrorism, particularly with regard to jihadist militant groups that have a strong geographic presence in Afghanistan, Iraq, Syria, Pakistan, and neighboring countries.
- Third, consecutive U.S. presidential administrations have supported a resolution to the Arab-Israeli conflict that calls for a secure Israel, an independent Palestine, and normalized relations between Israel and its Arab neighbors.
- Fourth, although more of a worldwide concern, the potential threat of nuclear weapons and other weapons of mass destruction has been particularly pronounced among CENTCOM countries, including Iran, Iraq, Syria, and Pakistan. U.S. national security and defense strategies have also stressed the risk posed by terrorist groups seeking to acquire these types of weapons.
- Last, Washington has steadfastly called for a politically stable and economically viable Middle East that is capable of withstanding interference by external and regional powers while supporting other U.S. interests in the region. This has included preventing the rise of a regional hegemon that can threaten U.S. or partner interests.

Looking ahead to 2035 and 2050, demographic and global energy consumption trends, as well as more recent developments related to the Abraham Accords and the potential revival of the Joint Comprehensive Plan of Action (the Iran nuclear deal), suggest that some, but not all, of these interests will remain at the forefront of U.S. policy and strategy in the CENTCOM AOR. We discuss the enduring interests of competitors and adversaries in Appendix A.

SOURCE: Shelly Culbertson, Howard J. Shatz, and Stephanie Stewart, *Renewing U.S. Security Policy in the Middle East*, RAND Corporation, RR-A904-1, 2022.

Endnotes

1 Michelle E. Miro, Flannery Dolan, Karen M. Sudkamp, Jeffrey Martini, Karishma V. Patel, and Carlos Calvo Hernandez, *A Hotter and Drier Future Ahead: An Assessment of Climate Change in U.S. Central Command*, RAND Corporation, RR-A2338-1, 2023. Appendix C in this report provides an overview of the projected effects of climate hazards in the AOR in 2050.

2 Nathan Chandler, Jeffrey Martini, Karen M. Sudkamp, Maggie Habib, Benjamin J. Sacks, and Zohan Hasan Tariq, *Pathways from Climate Change to Conflict in U.S. Central Command*, RAND Corporation, RR-A2338-2, 2023.

3 Mark Toukan, Stephen Watts, Emily Allendorf, Jeffrey Martini, Karen M. Sudkamp, Nathan Chandler, and Maggie Habib, *Conflict Projections in U.S. Central Command: Incorporating Climate Change*, RAND Corporation, RR-A2338-3, 2023.

4 Karen M. Sudkamp, Elisa Yoshiara, Jeffrey Martini, Mohammad Ahmadi, Matthew Kubasak, Alexander Noyes, Alexandra Stark, Zohan Hasan Tariq, Ryan Haberman, and Erik E. Mueller, *Defense Planning Implications of Climate Change for U.S. Central Command*, RAND Corporation, RR-A2338-5, 2023.

5 For analysis of global competition in this region, see Becca Wasser, Howard J. Shatz, John J. Drennan, Andrew Scobell, Brian G. Carlson, and Yvonne K. Crane, *Crossroads of Competition: China, Russia, and the United States in the Middle East*, RAND Corporation, RR-A325-1, 2022. Notably, despite this competition, Russia and China do not necessarily want to see the United States exit. China in particular benefits from U.S. security provisions to major oil producers and U.S. actions to safeguard the freedom of navigation in the region.

6 Michael E. Kurilla, *Statement for the Record, General Michael "Erik" Kurilla, Commander, U.S. Central Command*, before the Senate Armed Services Committee on the Posture of U.S. Central Command, March 13, 2023.

CHAPTER 2

WORKSHOP METHODS

To understand how these competitors and adversaries might take climate hazards and their effects into consideration when managing their interests in the CENTCOM AOR, the workshop presented nine scenarios to a panel of experts who were knowledgeable about the overall global strategy, interests, and capabilities of China, Russia, and Iran. The panelists were asked to envision how each country would react to the scenarios. The set of experts for each country included one researcher from RAND, at least one person from academia or a policy research institution, and one person with experience in the intelligence community. The Russia and Iran sides were constituted by three people each, and four people constituted the China side. All panelists responded to each scenario. In addition, RAND staffed a control cell to answer any participant questions about the U.S. posture in the theater or requests for clarification of climate effects.

The country experts were asked to develop their responses at the strategic and operational levels while considering the overall priorities and goals of the countries they represented. Discussion focused on what *actions* U.S. competitors and adversaries would take in each of the scenarios. The China, Russia, and Iran expert participants were not limited in their responses to military tools; rather, they were asked how the competitor or adversary would respond across all instruments of national power (e.g., diplomatically or with development assistance). To ensure open conversation and encourage imaginative responses, the workshop was held under the Chatham House Rule, meaning participants and their institutions cannot be identified.[1]

Scene Setter

The main substance of the workshop took place in person over two days at RAND's Arlington, Virginia, offices. The day before the first full day, the RAND team presented two scene setters virtually. The scene setters were designed as a primer for participants on the anticipated effects of climate change in the theater and what tools U.S. competitors and adversaries possess to exploit those effects.

The first scene setter detailed projected climate change in each of the three subregions and presented expected changes in temperature, drought and dryness, precipitation, water availability, crop production, sea level rise, dust storms, and fishery fluctuations, depending on the subregion. On the basis of standard climate models, the briefing showed that the region is getting hotter and drier and that climate extremes (e.g., flooding, prolonged drought) are becoming more frequent. This scene setter was based on analysis conducted in support of the first report of this series, *A Hotter and Drier Future Ahead: An Assessment of Climate Change in U.S. Central Command*.[2] Drawn from the outputs of four climate models using two emissions scenarios, the scene setter provided projected changes for the year 2035 and beyond. For more details on the climate models and the analysis the research team conducted, please consult the original report.

The second scene setter provided a geostrategic overview for 2035, the year when all nine scenarios were set, characterizing the political, socioeconomic, and military conditions. We posited that the region would remain largely similar to the status quo in 2023 but with some leadership changes. This limited the number of changed variables that participants had to consider about the future, allowing them to focus primarily on climate changes. However, there were two key issues that were not a straight-line continuation of the status quo. Notably, we posited that the Syrian civil war had been settled in favor of the Bashar al-Assad government and that a Taliban-ruled Afghanistan had been accepted de facto by regional countries, paving the way for the country to serve as a node for transpor-

tation networks linking Central Asia to countries to the south and to maritime outlets in the Gulf of Oman, the Arabian Sea, and the Indian Ocean.

Stemming from analysis from regional experts on our research team, the political, socioeconomic, and military conditions for the three competitors or adversaries were as follows for 2035:

- We posited that China will have a new Chinese Communist Party general secretary by 2035, but with previous leader Xi Jinping still exercising control. Although U.S.-China economic exchange will remain significant, the two countries will be at the center of two permeable economic ecosystems. China will have established itself as a leader in green technologies. Its military will be able to project power throughout Asia, the Middle East, and East Africa and will establish a network of naval bases in these areas.
- Russia will remain economically stagnant and will have a new leader. Its war in Ukraine will evolve into a frozen conflict, and Russia will remain under Western sanctions. In spite of this, Russia will remain a major hydrocarbon and agricultural exporter and focus on rebuilding its military and retaining the ability to deploy specific military capabilities. Russia will also strengthen its defense relationship with Iran and remain the more powerful actor, although this gap will be narrowing.
- We assumed Iran will have a new supreme leader, but with control largely in the hands of the Islamic Revolutionary Guard Corps. Iran will remain socially unstable, economically weak, and under sanctions but with nuclear breakout capability, albeit with no indications of an arsenal or tests. Iran will also maintain a robust security relationship with Russia.

We concluded this briefing with a discussion of the toolkits that are available to China, Russia, and Iran to take advantage of climate-related conflict across the diplomatic, information, military, and economic spectrums. These toolkits included opportunities and coercive tools that are related directly to climate change—such as exports of green energy technology or embargoes of minerals that are necessary for green energy technology (more details about the climate policies of U.S. competitors and adversaries can be found in Box 2.1)—and the more traditional tools of statecraft, such as enhanced economic exchange, United Nations (UN) Security Council vetoes, and the use of force.

Workshop Scenarios

The RAND team generated nine scenarios that varied across several dimensions (see Table 2.1). These dimensions included

- type of climate hazard, including a variety of water issues, drought, and extreme heat
- type of conflict, from internal unrest, to intrastate war, to interstate war
- CENTCOM subregion (specifically, Levant and Egypt, Central Gulf, and Central and South Asia).

This variation was designed to increase the generalizability of findings, since the nine scenarios encompassed a range of climate effects across the AOR. Because climate effects do not respect command boundaries, many of the scenarios crossed the seams of geographic combatant commands, specifically between CENTCOM and U.S. Africa Command (AFRICOM), CENTCOM and U.S. European Command (EUCOM), and CENTCOM and U.S. Indo-Pacific Command (INDOPACOM). Two scenarios additionally considered a geostrategic environment in which the United States reduced its physical presence in the region, providing an opportunity for China to step into the void.

Each scenario followed a specific format. After providing the participants with a brief top-line overview, the RAND team presented baseline political-military and socioeconomic conditions, regional relationships, and geostrategic relations, particularly involving China, Russia, and the United States. The scenario then moved into an instigating event: a climate-related issue that could precipitate conflict. At that point, each scenario more deeply explained how the developing conflict related to climate change. Finally, each scenario concluded with the events of the conflict itself. See Appendix D for an expanded summary of the workshop scenarios.

In each case, the RAND team aimed to create quandaries for China, Russia, and Iran by having the scenario conflict cross a policy redline, such as the killing of nationals, the destruction of valuable infrastructure or trade routes, or any other threat to core national interests.

We then initiated a discussion that drew from the following set of questions:

- Are there specific actions or operations you will take to either improve your position in the region or create dilemmas for the United States?
- What actions will you take in [country that is the focus of the scenario]?
- What actions will you take outside that country but in the region?

Box 2.1. The Climate Policies of U.S. Competitors and Adversaries

China, Russia, and Iran all take climate change into account in their official government policy documents. However, all three countries have adopted approaches that elevate economic interests over sacrifices to reach net-zero carbon emissions this century or even to just reduce greenhouse gas emissions. In this box, we provide a summary of each country's actions and policies related to climate change. We expand on this discussion in Appendix B.

China

China's official policy on climate change indicates that Beijing takes the challenge seriously, at least in its statements, and plans to take specific actions to address it. However, in practice, China has demonstrated that taking action on climate change might depend on the status of other national priorities, especially economic growth to maintain social stability. Its approach to reducing emissions is maintaining economic growth, and even expanding the use of fossil fuels, while planning to reach peak carbon emissions by 2030 and then carbon neutrality by 2060. China also aims to become more involved in international climate governance. In addition, China has become an important player in the creation of technologies to transition away from the use of hydrocarbons, such as solar photovoltaics and electric vehicles. However, at the same time, China has been expanding its use of some hydrocarbons, notably coal.

Russia

Like China, Russia remains officially engaged with global climate change mitigation efforts and has participated in international climate change negotiations. Russia is a signatory to all UN climate treaties and the 2015 Paris Agreement on climate change, committing itself to reaching net-zero carbon emissions. However, many of its climate commitments fall short when confronted with other priorities. Russia's 2035 energy strategy signals a substantial increase in fossil fuel production, combustion, and exports. Additionally, Russia's war in Ukraine has shifted efforts and resulted in Moscow retreating on earlier climate agreements. Although Moscow has committed to lowering greenhouse gas emissions and reaching climate neutrality, economic gains are likely to drive its ultimate decisions. Russia will also benefit from climate change, specifically from the melting of Arctic sea ice and the opening of the Northern Sea Route, linking Asia with Europe and the Western Hemisphere. Russia could also benefit from changes in growing seasons, allowing it to expand agricultural production, but these effects are uncertain, and there could be negative consequences for the agricultural areas that were most productive as of 2023.

Iran

Among the three countries, Iran is the most negatively affected by climate change. Iran faces a variety of serious environmental challenges, including drought, deforestation, an increase in average temperature, population displacement, and dust storms. However, some—or many—of these effects are also caused by resource mismanagement and poor governance. Combatting climate change has not been a priority for the government in part because of cost, given Iran's struggling economy. Iran signed the Paris Agreement and committed to reducing greenhouse gas emissions by 12 percent, but the Guardian Council of the Islamic Republic has not yet approved the agreement. Iran is unlikely to change its actions until sanctions are lifted, and these are tied to the renegotiation of the Joint Comprehensive Plan of Action nuclear deal (or the reentry of the United States into the deal). Domestically, the government has been silencing climate change activists with imprisonment as part of its efforts to maintain regime stability.

Table 2.1. Climate-Related Conflict Scenarios in the Order Presented at the Workshop

Scenario	CENTCOM Subregion	Climate or Environmental Issue	GCCs
Iran famine exacerbates internal instability	Central Gulf	Water stress stemming from drought and declining groundwater	CENTCOM
Kurdistan Region of Iraq and federal government of Iraq hostilities over water	Levant and Egypt	Water stress stemming from diversion of river flow	CENTCOM, EUCOM
Syria and Jordan hostilities over water	Levant and Egypt	Water stress stemming from diversion of river flow	CENTCOM
Pakistan monsoons cause refugee crisis	Central and South Asia	Monsoon effects exacerbated by extreme precipitation and greater surface runoff	CENTCOM, INDOPACOM
Caspian Sea littoral states go to war over resources	Central and South Asia, Central Gulf	Competition over hydrocarbons and minerals, declining Caspian Sea water levels	CENTCOM, EUCOM
Egypt and Ethiopia hostilities over water flows from the Grand Ethiopian Renaissance Dam	Levant and Egypt	Drought leads Ethiopia to restrict Nile River flows	CENTCOM, AFRICOM
Closure of Suez Canal leads to attacks against military and civilian shipping	Levant and Egypt, Central Gulf	Dust storms stemming from increased aridity	CENTCOM, AFRICOM
Green energy alliance between China and Gulf realigns geopolitics	Central Gulf	Dominance in green energy technology	CENTCOM
Artificial island building in the Persian Gulf sparks conflict	Central Gulf	Geopolitical realignment lowers restraints on conflict, which causes environmental damage	CENTCOM

NOTE: GCC = geographic combatant command.

- Are any of these actions or operations short-term (less than one year) to either shore up your position with [country that is the focus of the scenario] or the region or to make gains with [country that is the focus of the scenario] or in the region?
- How might your country's decisions and actions regarding this issue be influenced by those of the other three regional and international great powers (China, Iran, Russia, and the United States)?
- Are there specific investments you will make, either in the long term or over a series of years, to improve your position or create dilemmas for the United States?
- Which of these investments will be in [country that is the focus of the scenario], and which of these investments will be in the region?

Endnotes

1 "Climate Change and the Future of Security in the CENTCOM AOR Workshop," transcript of workshop held at the RAND Corporation, Arlington, Va., February 6–8, 2023.

2 Miro et al., 2023.

CHAPTER 3

FINDINGS

COMPETITORS AND ADVERSARIES approached climate-related conflict in much the same way that they approached other conflicts. In the majority of the scenarios, climate-related conflict arose from economic and social pressures rather than from geopolitical causes or security dilemmas. But climate hazards made a difference in how conflicts might erupt and in the secondary and tertiary consequences of conflict, as noted from our climate-to-conflict pathway analysis. These differences and consequences included water stresses that created social unrest, water denial that exacerbated intrastate and interstate tensions, climate hazards that caused mass migration, and climate events—such as dust storms—that impaired economic performance. For two of our scenarios, we focused on potential geostrategic shifts resulting from upcoming transitions from hydrocarbon-based fuels to the development of green sources of energy. The other major difference brought about by climate change was that China and Russia had a new set of climate-related tools to use in relationships with regional countries. Although the experts representing these countries did not lean on these tools, the tools were mentioned and will likely become more important as climate change develops.

General Approach to Conflict

A few notable patterns emerged in how China, Russia, and Iran tailored their responses to the scenarios on the basis of the insights and projections of the experts on the panels. Unless otherwise noted, the source of this section is the transcript from the workshop. The perspectives of China and Russia on the U.S. security role in the AOR are elaborated on in Box 3.1.

China Reached for Diplomatic Tools First

China was generally reluctant to stake military or economic capital to address climate-related insecurity. Rather, Beijing focused on seeking diplomatic solutions—which were often ineffective—as a way to position itself as a peacemaker and to draw contrasts with the United States, which historically has been more willing to use military tools in the region. In some cases, China was willing to follow the U.S. lead as long as its own interests were not impaired. This allowed Beijing to skirt accountability with regional countries for legitimately accepted solutions. However, China often leaned toward bilateral or regional solutions rather than global solutions that would put the United States firmly in the lead. In interactions with Russia and Iran, Beijing cooperated with Moscow and Tehran to advance specific Chinese interests but remained wary of establishing more strategic relationships with either country in its approach to building its own relationships with countries in the AOR.

China did exercise more than diplomatic power when its economic interests faced a direct threat, such as the closure of the Suez Canal and subsequent attacks on shipping in the Red Sea. In this instance, participants noted that Beijing might deploy military forces to the region or leverage assets in Djibouti to participate in multilateral military operations to reestablish commercial freedom of navigation, anticipating that the United States will be in the lead. To a lesser extent, Beijing was willing to move beyond diplomacy when Chinese nationals were injured or killed or when Chinese assets were threatened. In these cases, China most often exercised non-combatant evacuation operations but, in some cases, discussed deploying military forces to buttress the security environment. But these Chinese measures were often aimed at protecting

Box 3.1. Chinese and Russian Perspectives on the U.S. Security Role in the Area of Responsibility

Workshop participants shared their thoughts on how Beijing and Moscow perceive their influence vis-à-vis Washington. The subject-matter experts noted that both China and Russia recognize current U.S. military dominance in the AOR, particularly in Middle Eastern countries. Although the workshop scenarios took place in 2035, the participants did not necessarily think that U.S. military influence would decrease to a level at which CENTCOM would not continue to play a significant role in the region. Our experts noted in multiple scenarios that China would take cues from the United States before calibrating any military response to the conflicts. Moreover, Beijing benefits militarily and economically from the United States continuing to be a security guarantor in the AOR and would not directly challenge Washington to take over this role.

Chinese interests rather than seeking an end to the conflict. A primary driver for a more active response in scenarios that involved Chinese nationals who were injured or killed was Beijing's desire to maintain stability and limit domestic unrest in China. Participants noted multiple times that a "domestic stability obsession drives foreign policy" and that "the ultimate nightmare is internal instability linked with external provocateurs." One other consequence was that China rarely had to choose between countries when conflict developed.

Russia Prioritized Reducing U.S. Stature

Like China, Russia was reluctant to stake high levels of economic or military capital to settle conflicts. And, like China, it did not find itself having to choose between countries when conflict developed. However, Russia did more aggressively propose diplomatic solutions that would place Moscow at the center or, at a minimum, at the table to resolve conflict. Offers of mediation were made in most scenario discussions. With its involvement, Russia often aimed at lowering the status of the United States or boxing it out entirely. In addition, it sought opportunities either to foment trouble for the United States or at least to let conflict brew or continue if that meant trouble for the United States with little cost to Russia.

The general Russian position focused on how it could exploit a chaotic situation to elevate Russia and impair the United States. One participant noted, "Russia has an opportunistic worldview, any conflict there is something to be gained." Although Russia was reluctant to deploy military forces, it was less reluctant than China, and elevating Russia sometimes involved using the situation to establish a new military base. Underlying each decision was the simple issue of whether, according to Russian analysis, the situation presented a zero-sum or negative-sum outcome. If the ramifications to Moscow were negative sum, there was more incentive to stop the conflict. If the ramifications were zero-sum—meaning any gains would go to either Russia or the United States, but not both—there was more incentive to seek an advantage and to box out the United States.

Russia also showed a willingness to play both sides in a conflict—for example, equipping two feuding partners—if it advanced its military industry or made Moscow more central to the ultimate conflict resolution. By not elevating one partnership over another, Russia kept its options open. This was highlighted during the Egypt-Ethiopia scenario, for which participants posited that Moscow would attempt to mediate between the parties and provide military or financial support to both countries for as long as possible.

Iran Lacked New Response Options

Iran, as a lesser power and still under decades-long sanctions, had fewer military and diplomatic options than China and Russia. It focused almost exclusively on regime survival and on maintaining its influence and security assets throughout the region. In almost all cases, Tehran did not seek to solve conflicts or contribute to their solution. Instead, it remained inwardly focused and defensive on the one hand and opportunistic about causing trouble for its opponents when possible on the other. Tehran additionally viewed its interactions with China and Russia as critical but transactional, not as enduring, strategic partnerships.

There were two cases in which Iran was involved in interstate conflict: the Caspian scenario and the militarization of islands in the Persian Gulf. In the Caspian scenario, Iran's involvement in conflict was built into the scenario. Participants thought Iran would recognize that it faced poor military options and seek an off-ramp through the Shanghai Cooperation Organization, lobbying China to halt the conflict. In the other scenario, the UAE militarized artificial islands in an effort to claim disputed territory. In response, Tehran moved toward a far more aggressive stance to protect its interests by mobilizing naval assets to encircle the artificial islands and harassing Emirati personnel supporting the islands. Tehran also threatened to use its unconventional military capabilities while working through multilateral institutions to force the withdrawal of the UAE. Since the UAE was the provocateur, this allowed Tehran to claim it was acting out of self-defense, a long-standing response used by Iran. In none of these cases did the relationship of climate to conflict influence Iran's ultimate behavior.

Available Climate-Related Tools

Although the three competitor or adversary countries responded with consistent approaches to climate-related conflict, the discussions over the two days of the workshop revealed mechanisms by which these countries could take direct advantage of climate hazards or by which they could use climate-related tools in their response.

China Offers Green Economy Opportunities

China can take advantage of climate change by ensuring that it remains at the center of new energy technologies that could replace hydrocarbons. As of early 2023, China was the dominant manufacturer of solar photovoltaics (known colloquially as solar panels) and of electric vehicle batteries.[1] In one of our scenarios, we used this dominance to establish a green energy partnership between China and the Gulf Cooperation Council countries, further linking their economies and lowering the importance of the United States to the economic future of this region. None of the workshop experts found this to be implausible.[2] Such a partnership is enhanced by the fact that the Arabian Peninsula has significant unexploited mineral resources that might be of use in green energy technology or that might provide new revenue streams if returns from oil and gas hold steady or decline.[3]

Additionally, China is experimenting with other technologies that could allow it to take advantage of climate change to help the countries of the Middle East and serve its own interests. Faced with its own drought in 2022, Beijing announced that it would attempt cloud seeding to increase rain and protect the fall grain harvest.[4] As of March 2023, it was difficult to get confirmation that this effort was tried or succeeded. However, China's state council promulgated a Weather Modification Administration Regulation in 2022, indicating that China is moving forward on this and other geoengineering technologies.[5] Numerous countries—including the United States—are experimenting with such technologies, although so far with little indication that they make a sizable difference.[6] If geoengineering technologies work, they could help alleviate climate pressures in the Middle East and help the implementing country gain influence.[7]

Climate change could also expand China's use of humanitarian assistance and disaster relief (HADR). This emerged in several scenarios. The People's Liberation Army (PLA) has expanded its HADR operations throughout the 21st century.[8] Although this expansion can have positive benefits, especially if climate-related disasters mount, such operations also serve "as an instrument of strategic influence and an opportunity to enhance PLA operational capabilities."[9] Multiple participants noted that China's recent HADR responses highlight that although they might not provide enough or the ideal mix of aid, a Chinese force is often the first at the disaster scene, underscoring how rapid presence sometimes builds more influence, especially when compared with the United States. Because China has proximity to disaster-prone areas in the CENTCOM AOR, such as Pakistan, which is buffeted by monsoon flooding, China has some natural advantages in serving as a first responder.

Russia Provides Traditional Economic Opportunities

Climate change also expands Russia's toolkit, especially in the economic sphere. With the melting of polar ice, the Northern Sea Route along Russia's northern border has become more available for commercial shipping between Asia and both Europe and the United States, competing with the Pacific Ocean route and with the Suez Canal and the Panama Canal.[10] In the workshop scenarios, when troubles arose around Red Sea freedom of navigation through the Suez Canal or the Bab al-Mandab, the strait that serves as the entrance to (or exit from) the Red Sea, Russia played up the promise of the Northern Sea Route as an alternative.

Climate change will also increase the land available in parts of Russia for agricultural production. However, that change could also degrade agricultural land in other parts of Russia, leaving the net effect unclear and potentially negative.[11] Russia is already a major grain exporter, especially to the Middle East.[12] Climate hazards surrounding harvests in Russia have already been contributing factors to Middle Eastern instability. Wildfires exacerbated by extreme drought prior to the 2011 Arab Spring destroyed one-third of Russia's wheat harvest and led to decreased Russian exports to the region, exacerbating regional socioeconomic tensions.[13] If, on balance, climate change does bring increased agricultural yields and a greater availability of arable land, higher levels of production could increase Russia's dominant position in food exports and enable it to use those exports as a tool of statecraft to reward friends and punish enemies.

Mineral production provides a third avenue in which climate change expands Russia's toolkit to respond to climate-related conflicts. Russia plays an important role as a supplier of minerals and metals used in green energy technology.[14] As countries pursue an energy transition, demand for these minerals and metals could increase, providing more revenue for Russia and giving it at least some potential leverage over customers, provided it held a dominant position.[15]

A final tool that Russia could use in response to climate-related conflicts involves military capabilities: dedicated Pipeline Troops, a special branch of the Russian Armed Forces' Material Technical Support Troops.[16] These troops can lay 37 to 50 miles of pipeline per day and install and operate pumping stations along the way. This gives Russia the ability to bring fuel or water quickly to disaster-affected or climate hazard–affected areas. Given the projected increase in climate disasters, Russia and China both have tools that would enable them to be effective first responder partners, providing them leverage in the region.

Iran Lacks the Ability to Manage Its Climate Disasters, Much Less Offer Support to Others

As with its general response to conflict, Iran has many fewer conflict-related tools than China or Russia. Iran itself is climate stressed and is managing these stressors poorly. However, Tehran has a few options for using climate-related tools. As an upper riparian state to Iraq, Iran could use water as a coercive tool, and water diversion could be used to assuage domestic shortages and mismanagement. Beyond that, Iran could mobilize HADR in response to climate disasters and disasters more generally to expand its influence, as demonstrated by Iranian-linked Iraqi groups in their response to the February 2023 Syria earthquake.[17] Finally, Iran is an exporter of hydrocarbons to Iraq and Syria, which are used in part to address those countries' heating and cooling needs. As climate change leads to more extreme temperatures, Iran's energy exports have become critical to Iraq's ability to cope. Moreover, those exports have also become critical to Syria's war-affected economy, regardless of climate change.

Use of Climate Knowledge

Even though the CENTCOM AOR is expected to be one of the most climate-affected regions in the world, the experts representing the three competitors or adversaries did not pursue the use of climate-related tools, nor did they exhibit significant awareness of climate issues, whether it was based on the region or their country of expertise. This was in part by design: We selected those experts on the basis of their country knowledge and not their knowledge of climate change. However, we specifically designed our scene setters and scenarios with material that was related to climate change and its effects on the AOR's physical environment to add knowledge and stimulate discussion.

More tellingly, despite the introductory scene setter on climate change and the presence of a climate expert—one of the principal authors of that scene setter—the workshop participants did not engage on climate issues to explore whether their opportunities were wider than traditional security options. As a result, the participants for the most part did not consider using nontraditional instruments of national security—such as technology transfer, climate response, and environmental policy—to gain influence, respond to conflict, or otherwise create dilemmas for the United States.

Endnotes

1 For more on solar photovoltaics, see International Energy Agency, *Special Report on Solar PV Global Supply Chains*, August 2022. For more on electric vehicle batteries, see Nick Carey and Paul Lienert, "EV Battery Makers Race to Develop Cheaper Cell Materials, Skirting China," Reuters, November 15, 2022.

2 In the scenario, we used the term *alliance* in the colloquial sense of cooperation rather than a formal treaty alliance. To avoid confusion, we use *partnership* in the text but *alliance* when referring to the title of the scenario because that is what was provided to workshop participants.

3 "Saudi Arabia Expands Its Mineral Exploration with 377 Mining Complexes," *Arab News*, February 6, 2023.

4 Mark Schiefelbein, "China Plans Cloud Seeding to Protect Grain Crop from Drought," Associated Press, August 21, 2022.

5 Eyck Freymann, "Climate Changers: Never Has the Prospect of Geoengineering the Global Climate Seemed So Technically Feasible—or Potentially Necessary," *The Wire China*, December 18, 2022.

6 Chelsea Harvey and Corbin Hiar, "Rainmaking Experiments Boom Amid Worsening Drought," Climate Wire, *E & E News*, February 7, 2023.

7 Some analysts have written that this is a promising area for U.S.-Chinese technology collaboration if geopolitical concerns do not get in the way (Freymann, 2022; Scott Moore and Eyck Freymann, "China Doesn't Want a Geoengineering Disaster," *Foreign Policy*, February 21, 2023).

8 Matthew Southerland, *The Chinese Military's Role in Overseas Humanitarian Assistance and Disaster Relief: Contributions and Concerns*, Staff Research Report, U.S.-China Economic and Security Review Commission, July 11, 2019.

9 Emilio Moreno, *People's Liberation Army's HADR Operations in Oceania*, Center for Excellence in Disaster Management and Humanitarian Assistance, January 2022; see also Southerland, 2019. On the possibility of climate-related disasters mounting, see World Meteorological Organization, "Weather-Related Disasters Increase over Past 50 Years, Causing More Damage but Fewer Deaths," August 31, 2021; Sebastian Acevedo and Natalija Novta, "Climate Change Will Bring More Frequent Natural Disasters & Weigh on Economic Growth," *IMF Blog*, November 16, 2017.

10 Lawson W. Brigham, "The Russian Maritime Arctic," *Wilson Quarterly*, Winter 2002.

11 Federal Research Center Krasnoyarsk Science Center of the Siberian Branch of the Russian Academy of Sciences, "Agricultural Area in Siberia Will Expand Due to Climate Change," December 13, 2019; "Russia's Far North Could Be Arable in 20–30 Years as Permafrost Melts—Minister," *Moscow Times*, September 7, 2021; Florian Schierhorn, "Will Russian Agriculture Benefit from Climate Change?" *Russian Analytical Digest*, Vol. 272, October 25, 2021.

12 Bank of Finland Institute for Emerging Economies, "As the World's Largest Wheat Exporter, Russia Plays a Major Role in Food Security of Africa and the Middle East," BOFIT Weekly 2022/27, July 8, 2022.

13 Steve Baragona, "Food Price Spikes Helped Trigger Arab Spring, Researchers Say," Voice of America, December 13, 2011.

14 Paul Hockenos, "How Russia's War Is Putting Green Tech Progress in Jeopardy," Yale Environment 360, Yale School of the Environment, June 16, 2022.

15 This power is mitigated by the fact that, over the medium term, if Russia withheld supplies, buyers would find alternate supplies as Europe has been doing in 2022 and 2023 in the case of Russian natural gas.

16 Charles K. Bartles, "Russian Pipeline Troops: Sustaining the Fight Across the Land and from the Sea," *OE Watch*, October 2018.

17 Erik Yavorsky, "How the Popular Mobilization Forces Exploited Syria's Earthquake," Washington Institute for Near East Policy, February 27, 2023.

CHAPTER 4

CONCLUSION

AMONG THE MULTIPLE CHALLENGES faced by the U.S. armed forces, China presents the long-term pacing challenge, and Russia presents an acute challenge. This necessarily has refocused U.S. attention to the Indo-Pacific and Europe, but there are demands that spread around the world. Competition with China and Russia does not and will not take place only in proximity to those countries. In addition, climate change has emerged as a global security threat. In the CENTCOM AOR, this means that increased drought and extreme heat will create instability within and among countries in the region and alter, limit, or constrain the environment for military operations.[1] Notably, strategic competition and climate change are likely to interact, creating new challenges and requirements for CENTCOM.

Our workshop subject-matter experts indicated that the CENTCOM AOR remains critically important to all three competitors and adversaries featured in the workshop: China, Russia, and Iran. For China, the region provides significant amounts of energy and serves as an important link in trade routes to Africa, Europe, and North America. For Russia, the region is a near neighbor with historical links. For both countries, it is also a region from which threats of terrorism and extremism could emanate and must be stopped. Iran is located in the CENTCOM AOR, and it depends on the region for its economic well-being; it is also where Iran exercises influence. This extends not only to the CENTCOM subregions of Levant and Egypt and Central Gulf but also to the CENTCOM subregion of Central and South Asia, which has historical and current economic, cultural, and resource links with Iran. Most importantly from the U.S. security perspective and CENTCOM's role in safeguarding that security, all three countries treat the region as a field in which they can challenge U.S. interests and seek advantage over the United States. However, Russia and especially China do not necessarily want to see the United States exit the region; Beijing in particular benefits from the provision of security and the safeguarding of the freedom of navigation by the United States.

Just as competition is global, climate-related conflict could cross the borders of multiple combatant commands. We created scenarios that exploited this issue, but examples also exist in reality, including migration from the CENTCOM AOR to Europe in the EUCOM AOR and disputes about water flow between Turkey (EUCOM) and Iraq (CENTCOM) or Ethiopia (AFRICOM) and Egypt (CENTCOM). The fact that the consequences of climate-related conflict are likely to cross AORs means that the mechanisms for cross-command coordination will need to be improved. The scenario discussions showed that both China and Russia, with their attempts to not take sides or create firm alliances, rarely had to make difficult decisions among partners. The United States, however, given its dense web of security agreements and connections, could face difficult choices and prioritization challenges if such conflicts involve important U.S. partners on opposite sides. Different commands might have strong relations with any given partner, so that choosing one partner over another could impair a command's future relations with a partner that is important to regional security.

Although climate change is expected to have negative effects on much of the world, it could also provide benefits to China and Russia that could help them in their global competition with the United States and in their regional competition in the CENTCOM AOR. China has established itself as one of the most important manufacturing nodes of technologies that will be essential to the transition away from hydrocarbons toward other forms of energy generation, such as solar and wind. Sharing these technologies—for a price—and using them to miti-

gate climate effects or coproducing them could give China an edge in the region. Likewise, Russia's ability to provide food—again, for a price—and natural resources that are useful for the energy transition could give it an edge. Iran likely has no such edge. The country will be under climate stress, like most of the region, and its own misgovernment and the pressure of sanctions have made addressing climate change and its effects on the security environment of secondary importance.

Climate change could also have negative consequences for the three U.S. competitors or adversaries, as it can for the United States. This leads to our final implication from this workshop. For the most part, the workshop's subject-matter experts did not delve deeply into how climate change might affect the countries they were analyzing or about how climate change could provide them tools for dealing with future conflict. In part, this was baked into the workshop. We did not provide climate overviews of Russia and China, although we did for Iran, since it is in the CENTCOM AOR. Even so, the participants did not ask about the future constraints the countries they were analyzing might face from climate change. This is natural, as it is difficult to think decades ahead, and the participants were already thinking forward about geopolitical, diplomatic, and military capabilities and future interests.

As planning for climate-related conflict continues, it will be beneficial to incorporate how climate change might affect the competitors or adversaries beyond their geostrategic position and the region of interest. In addition, it would be useful to build climate literacy among CENTCOM planners, operators, and intelligence professionals. They do not need to be experts, but they do need to know what questions to ask of experts and how to assess the answers given the high uncertainty about the trajectory of climate change. The limited awareness of the U.S. foreign and security policy establishment of these issues raises risks that the United States could be blindsided by negative climate consequences. Thus, selected personnel should be trained to understand such issues as the most widely used climate models, the effects of heat on human activity, the basics of hydrology, and the basics of climate and food production.

It would also be beneficial to incorporate climate experts into planning, workshops, and wargames as a way to test various assumptions about climate change and the different pathways that the competitors or adversaries might follow. The effects of climate-related changes to the operating environment on physical infrastructure, environment, and human beings are generally understood. However, understanding how climate change could affect the security environment and competitor and adversary decisionmaking processes are equally critical for stability in the region.

Although this report focused on how U.S. competitors China and Russia and primary regional adversary Iran might take advantage of climate-related conflict in the year 2035, CENTCOM is also involved in many regional efforts to mitigate the risk of conflict. The maintenance of bases and forward deployed forces and the conduct of security cooperation activities and key leader engagements throughout the region support those efforts. In addition, the CENTCOM AOR hosts seven of the United States' major non-North Atlantic Treaty Organization (NATO) allies.[2] In the fifth report in this series, which is the last, we investigate operations, activities, and investments that CENTCOM can undertake to mitigate the risk of climate-related conflict, expand regional partnerships and innovation via climate resiliency, and understand what nonconflict-related operations the command might need to be prepared to undertake at an increased operational tempo.

Endnotes

1 U.S. Department of Defense, *Department of Defense Climate Risk Analysis*, October 2021, p. 10. See also the first report in this series, *A Hotter and Drier Future Ahead: An Assessment of Climate Change in U.S. Central Command*, for specific climate projections (Miro et al., 2023).

2 U.S. Department of State, "Major Non-NATO Ally Status," fact sheet, Bureau of Political-Military Affairs, January 20, 2021. Regional countries with this status are Bahrain, Egypt, Israel, Jordan, Kuwait, Pakistan, and Qatar. By law, Taiwan is not included in the list of 18 but is treated as a major non-NATO ally without formal designation.

APPENDIX A

COMPETITOR AND ADVERSARY INTERESTS IN THE U.S. CENTRAL COMMAND AREA OF RESPONSIBILITY

WORKSHOP PARTICIPANTS noted repeatedly that China, Russia, and Iran view the CENTCOM AOR as an important region that merits their involvement. These three countries also view the region as a field for competition or confrontation with the United States. This appendix provides an overview of the interests of China, Russia, and Iran in the CENTCOM AOR.

China

For China, so-called major countries—including the United States, Russia, and the European Union—as well as periphery countries in China's Pacific neighborhood—are considered the highest priorities. Nonetheless, Beijing has traditionally found value in the Middle East and Central Asia. China's main interests in the CENTCOM AOR are largely related to economics, albeit economics closely tied to security. Most importantly, China aims to retain access to energy flows from the region. Moreover, both the broader Middle East and Central and South Asia are important nodes in the Belt and Road Initiative, the label China applies to its longer-term effort to create greater connectivity to and influence in the world. Central Asia provides a land connection to Europe; South Asia provides a land connection to the Gulf of Oman and the Arabian Sea, bypassing the Strait of Malacca chokepoint. The Middle East is the only area that intersects both the land-based Silk Road Economic Belt and the sea-based 21st Century Maritime Silk Road, components of the Belt and Road Initiative. The construction and management of foreign ports under Belt and Road support Chinese trade and can serve a dual-use purpose in the support of the PLA Navy. Beijing also has interests in keeping extremism from emanating from the region toward China and in further establishing itself as a great power. To accomplish its goals, China generally avoids picking sides, getting entangled in political disputes, or getting involved in military confrontations. It does not directly challenge the United States but would not reject supplanting the United States as the dominant external power in the region over the long term.

Russia

Russia's enduring interests in the CENTCOM AOR are related to economics, including trade, energy, and investments. In the Middle East, Russia seeks to use military power and arms sales to assert its influence and reestablish itself as a major regional player. In Central Asia, it has a political interest in supporting pro-Russia regimes. Moscow wants to maintain the cultural ties that were established during the Soviet era, and even well before that, and retain its sphere of influence. In the Middle East, Russia presents itself as a nonaligned power and regional mediator, promoting decisions and governments that guarantee regional stability and secure Russia's economic and political goals. These relationships serve Moscow's vision of steadily pushing out the West. It presents itself as a long-term substitute to the West, one that does not seek regime change or changes in internal policy matters in exchange for support and one that favors a more multipolar world. Russia's concerns about the security situation include a focus on the stability of regimes to reduce the threat of terrorism and extremism emanating from the region. Economically, deepening trade relations and its customer base has been a priority. Most importantly, Russia views the energy and resources market as the primary economic justification for its regional engagement. Russia is an active investor in resource and energy ventures in the region while coordinating with the Organization of Petroleum Exporting Countries to bring stability to the global oil market in a way that is favorable to Russian interests. Russia's current priorities, as they relate to trade, energy, security, and influence, are likely to extend through 2035 and possibly into 2050. However, as geopolitical dynamics shift and the Soviet legacy wanes, energy-related interests could potentially outweigh the others.

Iran

Iranian policies are driven by several objectives: safeguarding the existing regime from external and internal threats, including the potential for subversion instigated by foreign countries; maintaining and defending the country's sovereignty; and reclaiming international status and respect. At the core of these objectives are attempts to eliminate the U.S. presence and influence from the Middle East and to replace Israel with a Palestinian state. Broadly, Iran sees itself as a leader of international Muslim, and in particular Shia, communities. Iran seeks to maintain economic viability and pursue greater self-sufficiency by constructing a so-called resistance economy that can better withstand the shock of international sanctions. Iran does not seek territorial expansion but instead seeks to exercise indirect influence over other states in the region to weaken existing enemies, avert the rise of new adversaries, and otherwise shape a favorable environment. Tehran's preferred deterrence strategy toward external threats emphasizes the development of asymmetrical military capabilities with a focus on military self-reliance. Iran's Axis of Resistance provides an informal regional alliance with Syria, Lebanese Hizballah, and Iraqi Shia militias; Yemeni Houthis provide a relationship of convenience that has been strengthening. In Iraq, Iran seeks to cultivate a state that is friendly to Iran but weak enough not to become a military or economic competitor.

APPENDIX B

COMPETITOR AND ADVERSARY APPROACHES TO CLIMATE CHANGE

THE UNITED STATES is not the only country reshaping its security and economic policies in response to climate change; China, Russia, and Iran are doing so as well. This appendix reviews how each of these three competitors or adversaries are approaching climate change. U.S. climate policies are likely to play an even more important role in CENTCOM planning, but we omit those policies from this report for two reasons. First, the focus of this report is on U.S. competitors and adversaries. Second, U.S. policies are widely available in open sources and are already being communicated to CENTCOM personnel in numerous strategy and planning documents. However, it is important to keep in mind that U.S. policies could evolve under different administrations; therefore, CENTCOM's responsibilities and focus could change with U.S. political developments.

China's Climate Change Policy and Activities

China's official policy on climate change indicates that Beijing takes the challenge seriously, at least in its statements, and plans to take specific actions to address it. However, in practice, China has demonstrated that taking action on climate change might depend on the status of other national priorities. For example, in August 2022, Beijing suspended U.S.-China climate change negotiations in retaliation for then-U.S. House Speaker Nancy Pelosi's visit to Taiwan.[1] Although the negotiations were restored in November 2022 on the sidelines of the Conference of the Parties (COP) 27 climate change conference, Beijing's retaliatory reaction in a policy domain that was seemingly unrelated to Pelosi's visit strongly suggests that China views international cooperation on climate change as optional and thus expendable.[2]

Beijing's official statements are much stronger than this behavior. According to the report of General Secretary Xi Jinping to the 20th Party Congress in October 2022, Beijing is "working actively and prudently toward the goals of reaching peak carbon emissions and carbon neutrality."[3] As one of the world's leading carbon emitters, Beijing pledges in the report to "advance initiatives to reach peak carbon emissions in a well-planned and phased way in line with the principle of building the new before discarding the old."[4] To accomplish this phased transition, China promises to exercise "better control" over the amount and intensity of its fossil fuel usage.[5] Additionally, China will more deeply invest in green technologies and turn to alternative forms of cleaner energy.[6] The report concludes the discussion on climate change by stating that China will get more involved in climate change governance.[7] The 19th Party Congress report, issued in November 2017, argues that the "harm we inflict on nature will eventually return to haunt us" and that China has taken "a driving seat in international cooperation to respond to climate change."[8]

Another authoritative report, the 14th Five-Year Plan, published in March 2021, states that China will "implement

national independent contribution targets for climate change response by 2030 and formulate an action plan to reach peak carbon emissions by 2030."[9] Beijing's ultimate goal, according to the plan, is to achieve full carbon neutrality by 2060.[10] The 14th Five-Year Plan foreshadows the same Chinese activities that were announced in Xi Jinping's 20th Party Congress report to address climate change. On the international front, Beijing notes that

> we will adhere to the principles of fairness, common but differentiated responsibilities, and respective capabilities, constructively participate in and lead international cooperation on climate change, promote the implementation of the United Nations Framework Convention on Climate Change and its Paris Agreement, and actively carry out South-South cooperation on climate change.[11]

These official pronouncements suggest that Beijing plans to play an active, but tailored, role to address China's specific circumstances.

In terms of practical action, China has become an important player in the creation of technologies for transitioning away from the use of hydrocarbons, such as solar photovoltaics, equipment for the wind generation of electricity, and electric vehicles. At the same time, China has been expanding its use of some hydrocarbons, notably coal, with permits for new coal power plants in 2022 hitting their highest mark since 2015.[12]

Russia's Views of Climate Change

In terms of climate change, there is conflict in what Russia *says* versus what it *does*. Russia has continued to participate in climate change negotiations over the years, including COP27 and UN summits aimed at green diplomacy. It is a signatory to all UN climate treaties and the 2015 Paris Agreement, committing itself to reaching net-zero carbon emissions. However, many of Moscow's climate commitments fall short.[13] Russia's 2035 Energy Strategy signals a substantial increase in fossil fuel production, combustion, and exports.[14] Additionally, the war in Ukraine has shifted efforts and resulted in Moscow retreating from earlier climate agreements. Although Moscow has committed to lowering greenhouse gas emissions and reaching net-zero emissions, its ultimate decisions will be driven by prospective economic gains.

Propaganda has been a successful tool used on the Russian people to downplay the climate threat and portray mitigation as an unaffordable objective, deprioritizing climate actions within Russian society. On the world stage, Moscow has kept up a diplomatic balancing act by participating in negotiations but stalling actual progress and doing the bare minimum. At the Valdai Discussion Club meeting in October 2022, President Vladimir Putin discussed climate change in a roundabout manner, stating that Russia is excited to develop alternative energy sources and has a competitive advantage in the market.[15] However, achieving carbon neutrality would contradict Russian financial interests, indicating that Russia is unlikely to pursue alternative sources of energy in a significant way. Instead, Russian leaders have resorted to blaming the West, pointing to Western politicians and sanctions as sabotaging Russian climate policy. During COP27, Russian representatives opposed the inclusion in the conference's final agreement of articles for reducing the use of fossil fuels or increasing the production of renewable energy and continued to insist that each country decide for itself how it will reduce emissions.[16] According to Russia's climate envoy, the country is committed to meeting its climate commitments, but Western sanctions are preventing it from fighting climate change—but doubts about this causality could arise, given the state of world affairs in February 2023 and Russia's general domestic dismissal of global warming.[17]

In concrete terms, Russia's main climate goal is to achieve a net-zero greenhouse gas emission target for 2060, but this is not an ambitious goal, given Moscow's assumptions about rapid forest expansion. In 2021, Russia adopted a law to limit greenhouse gas emissions but removed all measures that would have resulted in substantive emissions reductions.[18] Regardless of what Russia says in the diplomatic arena, its economy-wide emissions are continuing to rise, and Russia has yet to adopt serious renewable energy targets. With the war in Ukraine, climate change is no longer a priority, as evidenced by the Kremlin's decision to overturn climate legislation and take advantage of surging fossil fuel prices to fund the war.[19] Russia has "made it easier to build pipelines in nature reserves, scrapped regulations on automobile emissions and pushed back measures to reduce pollution as part of a broad rollback of environmental regulations."[20] Given the difference between Russia's stated policies and its actions, Russia appears to have little interest in taking action to stop or mitigate climate change and engages in climate diplomacy to preserve power and international status.

Iran's Perspective on Climate Change

Iran is facing a variety of serious environmental challenges because of the effects of climate change. These challenges include drought, deforestation, an increase in average temperature, population displacement, and dust storms. Since the early 1980s, the country has experienced a steady decrease in annual rainfall, with an average reduction of approximately 4 millimeters, while the average temperature has increased by 0.5°C.[21] These changes have contributed to a reduction in surface water in lakes and wetlands across the country.[22] Deforestation is another major environmental concern in Iran. A report on deforestation from 2001 to 2014 revealed a decrease in forest size by approximately 25 percent.[23] Moreover, dust storms have increased significantly in the southwest region of Iran and are associated with a significant drop in annual rainfall compared with the long-term average rainfall.[24] Another effect of climate change in Iran has been the depopulation of rural areas. Between 1996 and 2016, Iran's rural population decreased from 39 percent to 29 percent of the total population. This can be attributed in part to the effects of climate change on agricultural practices and livelihoods.[25]

However, the study of climate-related policies implemented by several post-revolution Iranian administrations demonstrates that climate change is not a priority for the regime. The decisionmaking process appears to be primarily driven by political considerations rather than the climate realities of the country.[26] Iran has signed the Paris Agreement and has committed to reducing greenhouse gas emissions by 12 percent.[27] However, the Guardian Council of the Islamic Republic has not yet approved the Paris Agreement. Given Iran's estimated $70 billion implementation cost for its Paris Agreement commitments and the government's current budget deficit, even if the Guardian Council gives its approval, implementation of the agreement is unlikely to be financially feasible. Moreover, Iran analysts believe that implementing the Paris Agreement is linked to the removal of sanctions, which were reinstated by the United States when it exited the Joint Comprehensive Plan of Action nuclear deal.[28] Until further progress is made on that front, the Paris Agreement is unlikely to be enforced, even in the event of financial feasibility and approval by the Guardian Council.

In the past few years, the Iranian regime has been consistently silencing climate change activists. For instance, Kawoos Said Imami, a climate change activist and professor, was imprisoned and allegedly committed suicide while in custody.[29] Many other climate change activists have been given long-term prison sentences and are facing serious charges of conspiring and spying for Iran's adversaries.[30] This illustrates that the regime views raising any complaints or disagreements about government policies, even when connected to climate and the environment, as security threats to the regime's survival and will respond appropriately.

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APPENDIX B

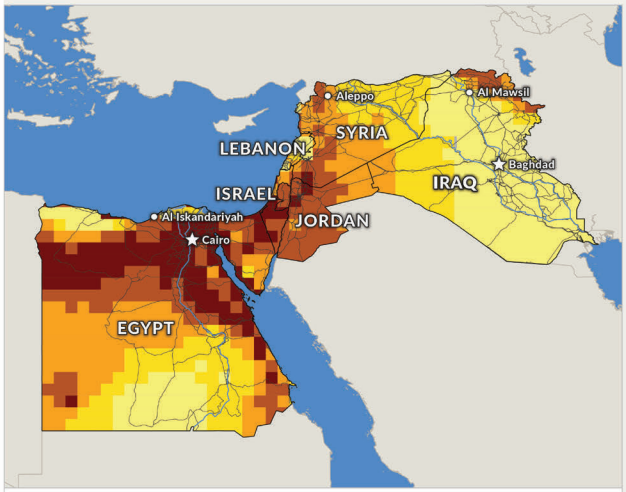
APPENDIX C

CLIMATE PROJECTIONS

THIS APPENDIX CONTAINS figures that highlight the most significant climate hazards that each of CENTCOM's three subregions are projected to encounter by 2050. The analysis for each of these figures was conducted in support of a report on climate projections, the first report in this series.[1]

Figure C.1. Levant and Egypt Projected Climate Hazards in 2050

LEVANT AND EGYPT



Water scarcity, extreme heat, and sea-level rise are the biggest causes for concern across the subregion.

WATER SCARCITY

- Transboundary waters—the Jordan River, Tigris and Euphrates Rivers, and Nile River—all face heightened water scarcity, posing risk of escalating tensions over shared waters.
- Insufficient local water resources compounded by water management challenges may further stress water systems.

EXTREME HEAT

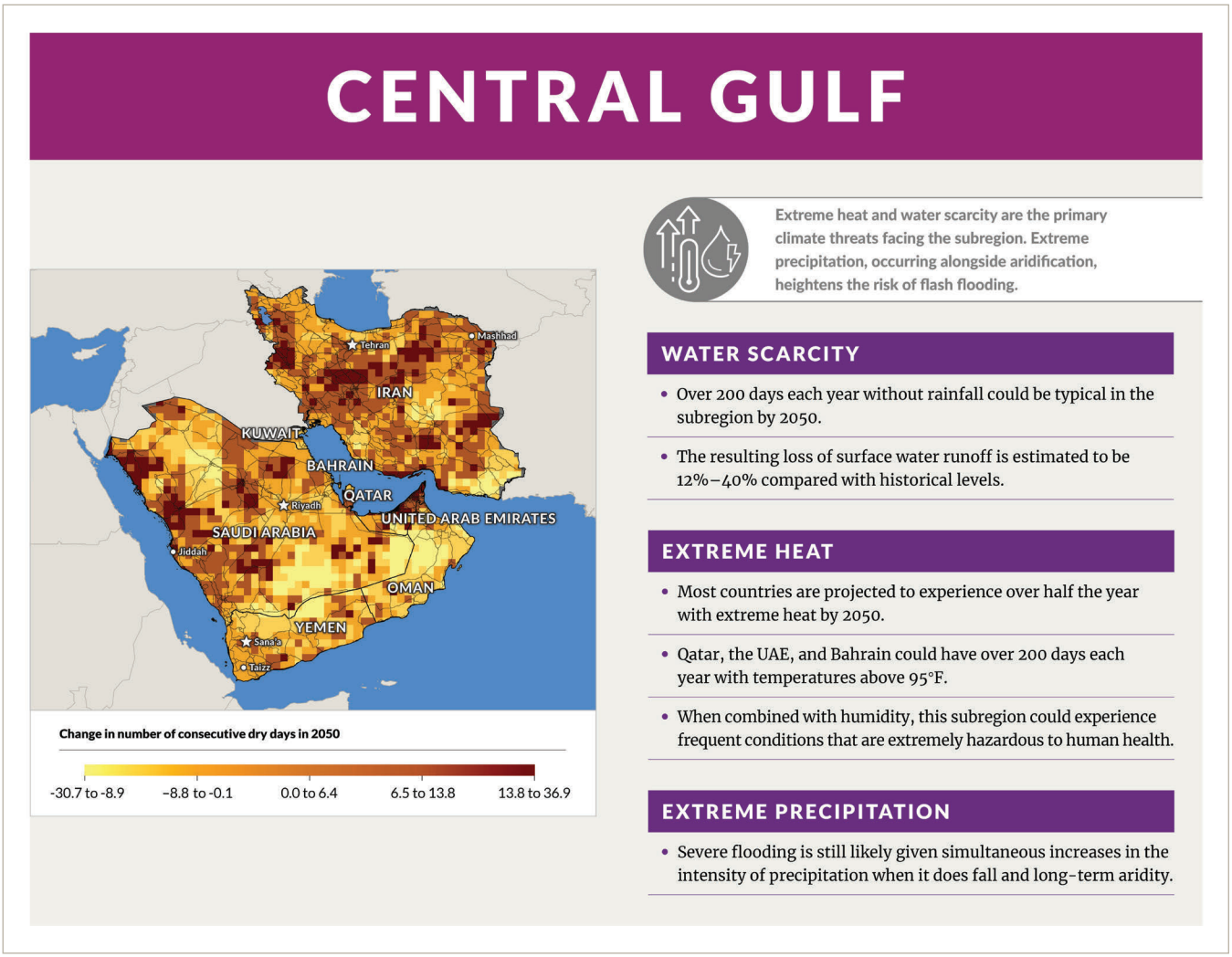
- By 2050, countries could see up to a 5x increase in extreme heat days compared to historical levels, meaning such days could occur for up to half the year.
- Countries have already experienced public health, agriculture, and economic impacts due to extreme heat events.

SEA-LEVEL RISE

- The Nile River Delta in Egypt and Basra and coastal Iraq are at high risk of coastal inundation.
- Coastal regions of Lebanon and key facilities along Israel's coast are also exposed to sea-level rise.

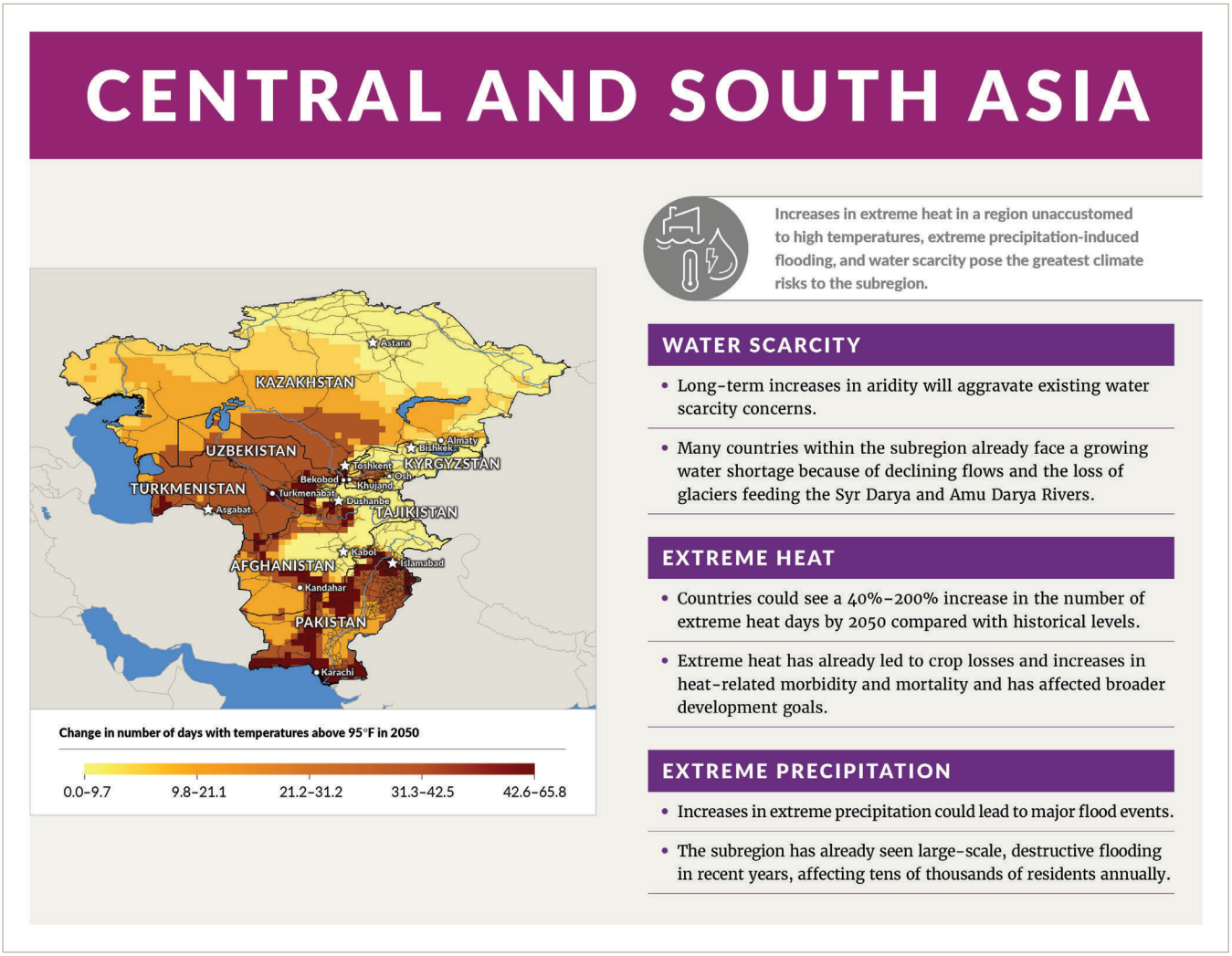
SOURCE: Information from Miro et al., 2023.

Figure C.2. Central Gulf Projected Climate Hazards in 2050



SOURCE: Information from Miro et al., 2023.

Figure C.3. Central and South Asia Projected Climate Hazards in 2050



SOURCE: Information from Miro et al., 2023.

Endnote

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APPENDIX D

SUMMARY OF WORKSHOP SCENARIOS

THIS APPENDIX PROVIDES an overview of the nine scenarios presented to the workshop participants. The nine scenarios represented a variety of climate hazards and climate-to-conflict pathways. The goal was to present different challenges to the subject-matter experts to see if they believed China, Russia, or Iran would respond in different ways. The scenarios were additionally designed to present difficult military and policy response choices to CENTCOM and the United States.

Table D.1. Climate-Related Conflict Scenario Summaries

Scenario	Scenario Summary	CENTCOM Subregion	Climate or Environmental Issue
Iran famine exacerbates internal instability	After decades of increasing drought and declining groundwater resources, Iran is experiencing severe water stress. Protests initiated by farmers have spread from Isfahan across the country. Security forces led by the Basij paramilitary force and the Islamic Revolutionary Guard Corps have issues controlling the protesters, who attack Iranian government facilities, along with Russian and Chinese facilities.	Central Gulf	Water stress stemming from drought and declining groundwater
Kurdistan Regional Government (KRG) and federal government of Iraq hostilities over water	Faced with increasing water scarcity after Iran diverts water, the KRG diverts water from the three major tributary rivers in its territory that feed into the Tigris, reducing water to federal Iraq. This damages Iraqi agriculture, causes water shortages in major cities, and limits water injection into important oil fields. Iraq demands the KRG restore water flows, but doing so will damage agriculture in Kurdistan. Military clashes occur between the Iraqi Security Forces and Popular Mobilization Forces on the one side and the Kurdistan Peshmerga with Turkish support on the other side.	Levant and Egypt	Water stress stemming from diversion of river flow
Syria and Jordan hostilities over water	Extended drought in Syria leads Damascus to increase the diversion of water from the Yarmouk River, resulting in severe water shortages in Jordan. Protests in Jordanian cities, including Amman, over the reduced availability of water threaten the stability of the Hashemite kingdom. A migration crisis ensues as Jordanians are denied entry into neighboring countries and territories, especially into the West Bank.	Levant and Egypt	Water stress stemming from drought and diversion of river flow
Pakistan monsoons cause refugee crisis	Flooding and destruction in Pakistan caused by monsoons result in a mass migration from Pakistan to China, Iran, and India. Pakistani refugees in China and Iran include various militants, destabilizing internal security. Indian troops are deployed to the border to block tens of thousands of Pakistani refugees seeking to enter India, with Indian forces killing refugees.	Central and South Asia	Monsoon effects exacerbated by extreme precipitation and greater surface runoff
Caspian Sea littoral states go to war over resources	As the level of the Caspian Sea continues to decline, resource competition over mineral and hydrocarbon resources in its seabed is rising. Russia and Iran—unhappy with the current divisions of oil, gas, and mineral wealth in the Caspian Sea—initiate military operations to take control of some Azerbaijani and Kazakhstani extraction sites.	Central and South Asia, Central Gulf	Competition over hydrocarbons and minerals, declining Caspian Sea water levels
Egypt and Ethiopia hostilities over water flows from the Grand Ethiopian Renaissance Dam (GERD)	Drought in the Ethiopian highlands is hurting agricultural production and drinking water availability in both states, sparking widespread protests. Cairo claims the GERD has reduced Nile water flows, and Ethiopia consistently rejects Cairo's request to release more water to downstream states. Egypt conducts military action—air strikes—against the GERD.	Levant and Egypt	Water stress stemming from drought and diversion of river flow
Closure of the Suez Canal leads to attacks against military and civilian shipping	The increasing number and severity of dust storms leads to multiple ships running aground in the Suez Canal, causing an extended closure. Extreme heat hinders quick efforts to reopen the canal. Afterward, violent activity between Eritrea and Houthi-led Yemen leads to the closure of the Bab al Mandab Strait, trapping hundreds of ships in the Red Sea.	Levant and Egypt, Central Gulf	Increasing dust storms stemming from increased aridity
Green energy alliance between China and the Gulf realigns geopolitics	The Gulf Cooperation Council—Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE—has greatly strengthened cooperation with China on the basis of investments in green energy technology; several states have increased cooperation with Israel for defense against Iran. Counting on China's relations with Iran and Israel's security cooperation, the Gulf Cooperation Council states have lowered their reliance on the United States for their security. However, seeing an opening to reassert its influence, Iran successfully sparks a coup in Bahrain and foments unrest in Saudi Arabia and Kuwait, raising the potential of a wider war.	Central Gulf	Green energy technology cooperation increases geopolitical realignment, which emboldens U.S. adversary Iran
Artificial island building in the Persian Gulf sparks conflict	The UAE, under the cover of securing its fisheries industry and protecting a heritage activity, takes steps to occupy the disputed island of Abu Musa. To do this, it builds new artificial islands in the vicinity of Abu Musa and covertly militarizes the new islands, reassured in its efforts by over a decade's worth of Chinese public statements about Abu Musa and the Tunbs islands. As a result of increased military cooperation with China, U.S. force presence has decreased in the Persian Gulf, creating a security opening for Iran.	Central Gulf	Geopolitical realignment lowers restraints on conflict, which causes environmental damage

ABBREVIATIONS

AFRICOM	U.S. Africa Command
AOR	area of responsibility
CENTCOM	U.S. Central Command
COP	Conference of Parties of the United Nations Framework Convention on Climate Change
EUCOM	U.S. European Command
HADR	humanitarian assistance and disaster relief
INDOPACOM	U.S. Indo-Pacific Command
PLA	People's Liberation Army
UAE	United Arab Emirates
UN	United Nations

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Climate change is projected to affect the physical environment of the U.S. Central Command (CENTCOM) area of responsibility (AOR) significantly throughout the 21st century and could have consequences for security. How climate change might do this, and what these security consequences might be, are important issues for security planners. U.S. competitors and adversaries could have new opportunities to seek advantages relative to the United States.

To understand how China, Russia, and Iran might exploit climate-related conflicts, the RAND Corporation hosted a two-day workshop that presented nine scenarios with different climate hazards and levels of conflict to a panel of 11 subject-matter experts. The experts were knowledgeable about the overall global strategy, interests, and capabilities of China, Russia, and Iran and were asked to assess how these countries would react to climate-related conflict. This report provides the results of that workshop.

The purpose of this research is to support CENTCOM leadership and planners and their interagency partners to prepare for a future security environment that is affected by climate change. Understanding the frequency of future conflict in the AOR, as well as the evolution of threats under climate change, will enable the U.S. government to better prepare for this future. This report is the fourth in a series focused on climate change and the security environment.

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