

Climate mitigation efforts of the U.S. Armed Forces

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Executive summary

For the U.S. military, climate change is an extremely grave challenge that manifests in multiple ways. These interconnected climate threats represent the most serious security challenge to the United States and the international community since the threat of a nuclear confrontation during the Cold War. For example, the 2022 National Security Strategy states that “of all the shared problems we face, climate change is the greatest and potentially existential for all nations.” In particular, the U.S. military sees climate change and global warming as fitting into four interrelated security challenges: (1) as a risk to military installations and infrastructure; (2) as a requirement for heightened humanitarian responses; (3) as a catalyst for civil unrest and disorder; and (4) as a principal cause for migration and internal displacement. The transformation of the U.S. armed forces represents a significant operational restructuring of the world’s largest military.

To address these multifaceted challenges, this paper discusses and proposes a comprehensive set of recommendations designed to enhance resilience and adaptability of military installations and operations in the face of climate change. These recommendations, detailed subsequently, encompass a range of strategies from infrastructure adaptation to collaborative efforts with civil society, aiming to fortify the U.S. military’s capability to respond effectively to the dynamic threats posed by a changing climate.

- Conduct vulnerability assessments of military installations, particularly seeking to identify risks from drought, flooding, excessive heat, sea level rise, energy demand, land degradation, wildfires, and extreme weather.
- Plan and budget for energy and utility autonomy for installations to include electricity, fresh water, water treatment facilities, and food.
- Budget and construct water desalination systems using renewable energy systems.
- Construct cooling centers with renewable energy systems.

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- Budget for basic human needs for refugee camps using the minimum humanitarian standards identified by The Sphere Project and The Humanitarian Charter and Minimum Standards (The Humanitarian Charter and Minimum Standards).
- Conduct exercises and rehearsals to establish refugee camps to include shelters (tents), solar lighting, adequate bathrooms, and food supplies.
- Work with civil defense forces, local organizations, non-government organizations, and other civil society groups to synchronize efforts and avoid redundancy of services.
- Identify other climate mitigation and adaptation efforts.

KEYWORDS

Department of Defense; Military; Climate Change; Threat.

1. Introduction

The U.S. Department of Defense considers climate change an extremely grave national security threat that manifests in multiple ways. Without rapid and substantial action, the consequences could be catastrophic on a global scale. The interconnected climatological threats represent an existential threat to humanity, the most serious security challenge to the United States and the international community since the threat of a nuclear confrontation during the Cold War. For example, the 2022 National Security Strategy states that “of all the shared problems we face, climate change is the greatest and potentially existential for all nations” (U.S. National Security Strategy, 2022, p. 9).

This report examines the development of U.S. government (USG) policy on climate change. This introduction will be followed by an explanation of how the U.S. Department of Defense (DOD) assesses the topic. In particular, the U.S. military sees climate change and global warming as fitting into four interrelated security challenges: (1) as a threat against military installations and infrastructure; (2) as a requirement for heightened humanitarian responses; (3) as a catalyst for civil unrest and disorder; (4) and as a principal cause for migration and internal displacement. To put these challenges into context, examples are drawn from the United States and Latin America.

2. The U.S. government position on climate change

Climate change mitigation efforts are a major focus of U.S. national security documents. In the National Security Strategy, published in October 2022, President Biden calls climate change “the greatest and potentially existential for all nations” (U.S. National Security Strategy, 2022, p. 9). The president has mobilized the entire U.S. government and all its branches to fight climate change and do everything within the government’s ability to avoid crossing the critical warming threshold of 1.5 degrees Celsius, after which scientists have warned some of the most catastrophic climate impacts will be irreversible (The White House, 2021). On January 27th, 2021, during his first week in the White House, Biden issued Executive Order 14008, laying out an extensive and ambitious plan to slow global warming, effectively directing the U.S. government in a coherent and aggressive unified effort. In April of that year, he organized a climate change summit in Washington D.C. with leaders from more than 40 countries, including heads of state from Antigua and Barbuda, Brazil, Chile, Colombia, Jamaica, and Mexico.

Biden has also increased the pledge the country made to the international community. The U.S., the second largest emitter of greenhouse gas emissions, and the pollution it generates from its energy, industry, defense, and transportation sectors, has an impact on every other nation on the planet, regardless of their level of development. Under President Biden, the U.S. recognizes its moral imperative to reduce this transnational and global threat to humanity. In 2021, the U.S. presented a new Nationally Determined Contribution to the United Nations Framework for Climate Change (UNFCCC). Emissions reduction goals were increased: a 50-52 percent reduction of U.S. emissions by 2030 (below 2005 levels). That was a big jump over the pledges of the previous Democratic president, Barack Obama, who promised to reduce emissions by 25% by 2050 (Obama White House, 2015).

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3. The Department of Defense (DOD) and the Office of the Secretary of Defense (OSD)

The U.S. Secretary of Defense, retired General Lloyd Austin, leads the largest U.S. government department. The Department of Defense is also the largest greenhouse gas emissions-producing organization globally, producing more pollutants from its operations and infrastructure than most countries³ (Crawford, 2019). The DOD produces 56 percent of the federal government's emissions and 52 percent of its electricity use (Birnbaum, 2023). As directed by the president, Secretary Austin is tasked with reducing the department's carbon footprint.

It is a monumental task: reduce the emissions of the U.S. Department of Defense, transform military installations away from fossil fuels toward renewable energy, find ways to shift to alternate sources of jet, ship, and vehicle fuel, and, all the while, don't lose an inch on warfighting readiness. The latter part has been a particularly challenging idea considering Russia's aggression toward Ukraine, the Israel-Hamas conflict, and tensions with China.

But Secretary Austin knows what is at stake. "We face all kinds of threats in our line of work, but few of them truly deserve to be called existential. But climate crisis does deserve to be called existential", he said in April 2021 (Austin, 2021, 0:33). The need for climate resilience and adaptation is urgent. The department has suffered billions of dollars of damage from climate disasters and the country's warfighting capabilities have been weakened as a result.

On September 1st, 2021, the Department of Defense published an updated DOD Climate Adaptation Plan - CAP (U.S. Department of Defense, 2021a) partly because of President Biden's mandate to prioritize climate change security implications in all government activities, including key strategy, planning, and programming documents (The White House, 2021). The CAP focuses on two broad efforts: (1) adaptation initiatives to enhance climate change resilience and (2) mitigation actions to reduce greenhouse gas emissions. The plan includes five lines of effort: (1) climate-informed decision-making; (2) train and equip a climate-ready force; (3) resilient built and natural installation infrastructure; (4) supply chain resilience and innovation; and (5) enhance adaptation and resilience through collaboration. For example, the new military budget requires the U.S. armed forces to electrify all non-combat military vehicles by 2035 (Birnbaum, 2023). Each branch of the armed forces has also been directed to take climate mitigation efforts. The U.S. Army, Navy, Air Force, and Marines have developed their own climate action plans in 2022.

3.1. Protecting threat against military installations and infrastructure

One of the top priorities of the U.S. DOD is to protect its installations and bases from climate change threats. Without fully functioning installations, military personnel are unable to conduct training, maintain their readiness, and achieve their missions. For example, if a military base relies on energy from a public utility company and that system crashes because of a climate catastrophe, the military base may lose perishable foods, water, heating, air conditioning, lighting, communications, computers, fuel distribution systems, and wastewater disposal systems.

Additionally, the U.S. has a global footprint. According to the 2022 Base Structure Report, the U.S. has almost 650,000 facilities in the U.S. and in foreign countries with a value of \$1,6 trillion (U.S. Department of Defense, 2022). To put that in perspective, those DOD properties' value is twice the entire department's annual operating budget⁴.

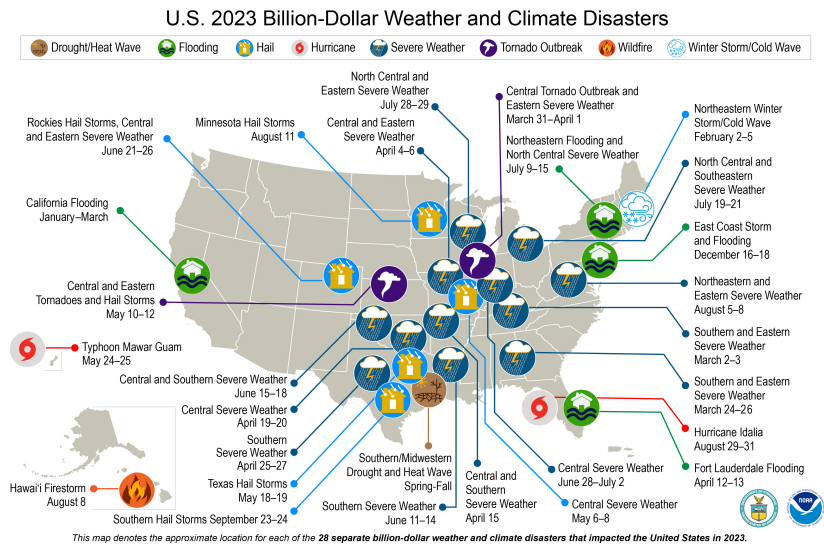
3. Jet fuel consumption accounts for approximately 70 percent of operational energy (2014 data).

4. The 2023 National Defense Authorization Act into law allotted \$816.7 billion to the Defense Department.

“The need for climate resilience and adaptation is urgent. The department has suffered billions of dollars of damage from climate disasters and the country's warfighting capabilities have been weakened as a result.”

According to department authorities, billions of dollars of equipment and facilities are at risk from climate effects, including drought, floods, fires, and extreme weather. A recent DOD study found that recurrent flooding, drought, and wildfires are the most common climate threats. Under Secretary of Defense for Acquisition and Sustainment, 2019). In the past few years, dozens of U.S. military bases have been struck by climate-induced disasters. Marine Corps bases in North Carolina suffered billions of dollars in damage from hurricanes in 2018. Offutt Air Force base in Nebraska, home to the U.S. Strategic Command and its squadrons of strategic nuclear bombers, had its runways closed by excessive flooding when the Missouri River overflowed its banks in 2019. Norfolk Naval Station, the largest military base in the world, sees frequent “sunny day flooding” because of rising sea levels that threaten base infrastructure that support nuclear aircraft carriers and dozens of other warships. Military exercises and operations at Naval Air Weapons Station (NAWS) at China Lake, California had to be canceled in 2020 because of wildfires. Military headquarters in Tampa, Florida, to include the Special Operations Command and the U.S. Central Command, were evacuated in September 2023 because of Hurricane Idalia⁵.

Image 1. U.S. 2023 Billion-Dollar Weather and Climate Disasters



Source: U.S. 2023 Billion-Dollar Weather and Climate Disasters from NOAA National Centers for Environmental Information (2023).

“U.S. military officials consider vulnerability risk assessments as a critical first step in determining the level of exposure and adaptive capacity of a base or installation.”

U.S. military officials consider vulnerability risk assessments as a critical first step in determining the level of exposure and adaptive capacity of a base or installation (Pinson *et al.*, 2021). The DOD uses two systems to determine the potential physical damage to its installations. First, the DOD Climate Assessment Tool (DCAT) considers eight climate hazards: coastal flooding, riverine flooding, heat, drought, energy demand, land degradation, wildfire, and historical extreme weather events. (Gade *et al.* 2020). The most dominant climate hazard for all DOD installations is drought (Pinson *et al.* 2021). In April 2021, it used this methodology to assess the climate risks of almost 1,400 DOD installations (Gade *et al.* 2020). Facilities were graded on three factors: (1) the exposure of the base to climate hazards; (2) the sensitivity of the base to the hazards; and (3) and the adaptive capacity to reduce exposure and sensitivity. The cumulative vulnerability of the base is referred to as the exposure-sensitivity-adaptive capacity (ESAC) framing. Obviously, the least vulnerable bases would have low exposure and sensitivity and high adaptive capacity. The process also considers the importance of the installation and uses a weighted value of the importance of the factor, thereby providing a mixed methods assessment with both quantitative and qualitative scores.

5. According to one independent report, \$378 billion of U.S. military bases and installations are at risk because of climate change and extreme weather. See, for example, Lee *et al.*, 2023) and (Eversden, 2021).

As part of a separate vulnerability assessment, the DOD also conducted energy resilience tests. These events, called black start exercises, involved disconnecting base power from the normal energy grid to determine if the base had sustained access to on-site power generation. It's a scenario that DOD authorities expect to occur frequently as climate shocks impact a region (e.g., blackouts caused by heat waves or overtaxed public power grids).

3.2. Heightened humanitarian responses

The second DOD priority for climate resilience are its missions of Humanitarian Assistance and Disaster Relief (HADR) and Foreign Disaster Relief (FDR). The 2022 National Security Strategy states, “the United States is the largest bilateral donor of humanitarian assistance and [...] we will sustain our leadership on humanitarian assistance and manage long-term refugee and displacement crises” (The White House, 2021). Domestic disasters — those within the 50 U.S. states or territories — are the responsibility of the Federal Emergency Management Agency (FEMA) and the states' National Guard. The latter has seen the operational tempo skyrocket because of climate catastrophes. According to Deputy Secretary of Defense, Kathleen Hicks, “the number of personnel days the National Guard spent on firefighting [within the United States] increased from 14,000 in 2016 to 176,000 in 2021, a twelve-fold increase in just five years and a major redirection of time, attention, and resources” (Garamone, 2023). In contrast to the National Guard, the U.S. active-duty military works almost exclusively overseas for foreign disaster relief but can be used for internal disasters and disturbances in exceptional cases.

The lead government agency for HADR efforts is the U.S. Agency for International Development (USAID). On average over the past five years, the US devoted about \$50 billion to foreign assistance and USAID received the lion's share of those funds, about \$20-\$25 billion each year. Portions go to global health and education initiatives, but about half of the annual budget (\$10 billion annually) is dedicated to humanitarian assistance, USAID's largest program⁶. USAID's Bureau of Humanitarian Assistance (BHA) manages those funds and HADR operations when the need arises⁷. Within the U.S. system, the military is a “supporting” government agency, not the lead on foreign disaster relief. The DOD is only activated when BHA determines their assistance is required.

The U.S. government responds to dozens of natural disasters in other countries each year. For example, in 2021, the BHA responded to 82 crises in 69 countries and distributed more than eight billion dollars to disaster zones (U.S. Agency for International Development, 2021a; U.S. Agency for International Development, 2021b). Every geographic combatant command (called COCOMs), from the U.S. Southern Command to the U.S. Indo-Pacific Command, practices HADR responses through exercises and simulations each year. The U.S. military — as is true in most countries — brings important assets to an emergency zone. The DOD can provide the airlift, sealift, logistics, manpower, distribution of relief supplies, field hospitals, search and rescue teams, communications, evacuation of injured victims, tent encampments for displaced persons, debris removal, and provision of basic human needs for large groups. Thousands of U.S. service members, dozens of US naval vessels, hundreds of aircraft, and millions of dollars can be devoted to HADR response.

Here's an example. In 2013, Super Typhoon Haiyan struck the Philippine Islands as the most powerful typhoon ever to strike land in the Pacific with 195 mph winds. More than 6,293 victims perished, and another 27,000 were injured. Approximately 1.1 million homes were damaged or destroyed, and four million inhabitants were left homeless. A storm surge of 15-20 swept across many low-lying areas. The U.S. DOD launched Op. Damarayan under Joint Task Force (JTF) 505 with a nuclear aircraft carrier, 80 aircraft, two guided missile cruisers, two guided missile destroyers, and several auxiliary and supply

6. The U.S. maintains public records on the humanitarian assistance it provides to other countries. See the helpful Foreign Assistance Dashboard on the USAID and DOS homepage. Link: <https://foreignassistance.gov/>.

7. Formerly known as the Office of Foreign Disaster Assistance (OFDA), the name was changed to the Bureau of Humanitarian Assistance (BHA) in 2020.

“The most vulnerable nations are those with fragile government institutions or inadequate resources to react promptly to their citizens’ needs. Ineffective responses by authorities contribute to the political populism, economic inequality, criminal activity, and migration crises that already bedevil many countries (Rettberg, 2015; Collier, 2003).”

“Members of vulnerable groups — the elderly, infants, farmers, displaced persons and immigrants, and the poor — are fifteen times more likely to die from climate disasters, according to the United Nations’ Intergovernmental Panel on Climate Change (IPCC, 2023).”

vessels. In total, JTF 505 included 14,000 U.S. military personnel who delivered 2,500 tons of relief supplies and evacuated 21,000 people (Klare, 2019, 40).

Catastrophic disasters — whether natural or man-made — can have devastating impacts on governments and communities and can create severe economic, political, and security consequences that may take years to restore. The most vulnerable nations are those with fragile government institutions or inadequate resources to react promptly to their citizens’ needs. Ineffective responses by authorities contribute to the political populism, economic inequality, criminal activity, and migration crises that already bedevil many countries (Rettberg, 2015; Collier, 2003).

3.3. Civil unrest and disorder

The Office of the U.S. National Director for Intelligence (DNI), head of 18 federal agencies within the intelligence community, places climate threat as a national security threat on par with China, Russia, Iran, and North Korea. In a special 2021 National Intelligence Estimate (NIE), the DNI warns of geopolitical confrontations over resources, within the Arctic, or with Chinese fishing fleets that are sweeping the oceans of food, depleting the traditional food sources of millions of other people (U.S. National Director for Intelligence, 2021, 8).

Latin American nations face even more risk of civil unrest than the U.S. In opinion surveys conducted at the William J. Perry Center for Hemispheric Defense Studies, the DOD regional academic center that studies security and defense matters in Latin America and the Caribbean, almost one in every three respondents (31 percent) considered climate change one of the top security threats in the region. Global average temperatures have already surged more than 1.1 degrees Celsius since the pre-Industrial Revolution period in the 19th century. Worsening conditions seem to have accelerated in the past 50 years the world population surges toward 11 billion by 2100. The most recent year (as of this writing in December 2023) was the hottest in human history. The World Meteorological Organization predicts the next five years will be even hotter, partly because of the return of El Niño in the Pacific Ocean (U.S. National Director for Intelligence, 2021, 11). In an extremely dire assessment, scientists warned humanity that it was also on track to hit 3.2 degrees Celsius by 2100, conditions that would probably lead to an extinction-level event for humanity. (United Nations Intergovernmental Panel on Climate Change (IPCC), 2023, section A.4.4; United Nations Intergovernmental Panel on Climate Change (IPCC), 2022, section C.1).

In testimony before the U.S. Congress in January 2019, the former Director of National Intelligence, Dan Coats, referred to climate change as a “threat multiplier” and stated that climate change is “likely to fuel competition for resources, economic distress, and social discontent” (U.S. Director of National Intelligence, 2019, p. 23). One author described it this way:

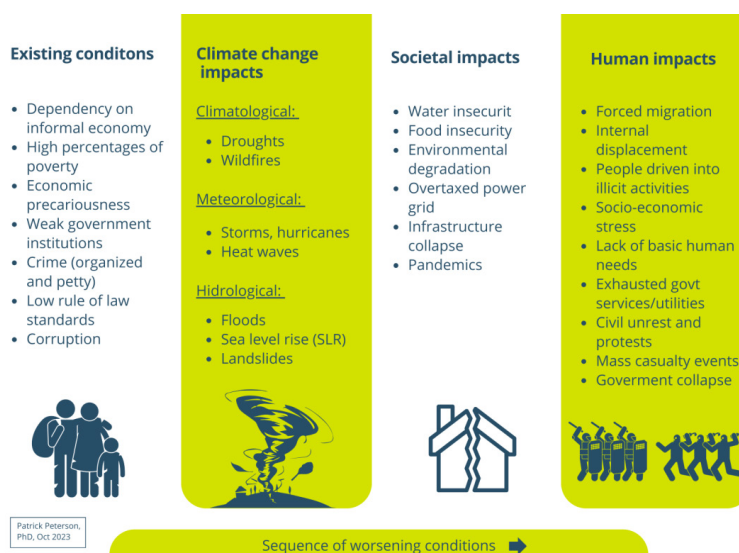
(...) many governments in Asia, Africa, and the Middle East are already on edge in terms of their ability to provide basic needs: food, water, shelter, stability. Climate change will exacerbate those problems and challenge the ability of governments to provide effective governance. Climate change acts as a threat multiplier for instability in some of the most volatile regions of the world” (Klare, 2019, p. 21).

In Latin America as an example again, all this is, of course, bad news for communities which suffer from rampant crime, weak government institutions, a reliance on the informal economy, and corruption. Poverty, for example, averages about 40 percent among Central American nations and 30 percent in South America, according to the World Bank (Paterson, 2023). Members of vulnerable groups — the elderly, infants, farmers, displaced persons and immigrants, and the poor — are fifteen times more likely to die from climate disasters, according to the United Nations’ Intergovernmental Panel on Climate Change (IPCC, 2023).

The public in most countries in Latin America is already suffering from a crisis of confidence in political parties and leaders. Subsequently, the region has seen a deterioration of democratic standards for seventeen consecutive years, according to the think tank Freedom House⁸ (Freedom House, 2023).

As climate conditions worsen, more frequent climate catastrophes will delay the recovery efforts and strain limited resources of governments. Displaced persons will resort to looting and illicit activities to find food and goods. Food and water crises will lead to public protests which may be met with shows of force by security forces as has been seen in Colombia, Chile, Honduras, and Nicaragua recently. The number of migrant and displaced persons will swell. Refugee camps will spring up wherever it is feasible. State security forces will be overstretched because of the heightened tempo of operations. Declarations of prolonged states of emergency, constitutionally permissible in every Latin American country, will anger citizens, contributing to additional unrest. Excessive force incidents by security force members will generate more public anger and protests, a vicious cycle that results in more violence. Under the worst-case scenario, countries face a collapse of the government or perhaps even a societal collapse.

Image 2. How climate change causes insecurity and instability



Source: How climate change causes insecurity and instability, own work (2023).

3.4. Migration and internal displacement

The last of the four focus areas for the U.S. is for climate-induced migration and displaced persons. Climate disasters have been increasing in frequency and intensity in the U.S. The number of billion-dollar disasters, for example, have risen every decade since the events were tracked. These immensely costly disasters come in the form of droughts, hurricanes, forest fires, and flooding. In the 1980s, for example, there were 33 natural disasters in which damages exceeded one billion dollars. That increased to 57 in the 1990s, 67 in the 2000s, and 131 in the 2010s. In the first three years of the most recent decade (2020-2023), there have already been 60 megaevents. The country is on track to break the previous annual record (National Centers for Environmental Information (NCEI), 2023).

Every one of these events leaves inhabitants homeless and often with the destruction of all their possessions and property. California, for example, has suffered from severe drought and consequently severe fire seasons. Global warming in the U.S. have created hot, dry conditions in many western states permitting wildfires to spread faster and burn more intensely. The 2018 Camp Fire, for example, was the deadliest and most destruc-

8. Populist leaders will ride the sentiment of frustrated constituents into office and begin to roll back the systems of checks and balances so important in healthy democracies, leading to a weakening of the rule of law.

tive in Californian history. Because of extremely dry conditions and strong winds, the fire raged out of control for more than two weeks, took 85 lives, and destroyed 18,000 homes and buildings. Climate events have become so severe in the United States that personal property and homeowners' insurance companies have refused to offer protection policies in parts of Florida and California, heightening the risk for many Americans.

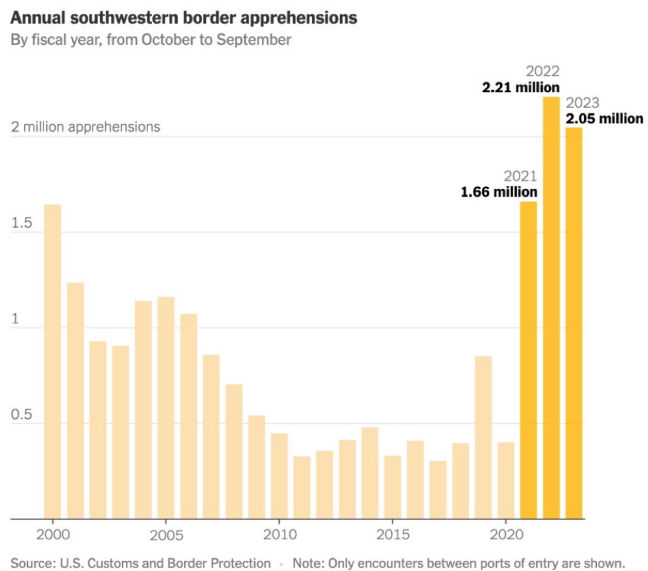
The U.S. is also witnessing a worsening humanitarian crisis along its southwestern border. For the second year in a row, illegal crossings at the U.S.-Mexico border have surpassed more than two million, far exceeding previous years' totals (Wu, 2023). This year, 2023, will probably mark a record in the number of people trying to enter the U.S. Climate change is driving the forced exodus from parts of Latin America.

In the DNI's National Intelligence Estimate (NIE), mentioned previously in this report, the five most vulnerable countries in Latin America and the Caribbean are Colombia, Guatemala, Haiti, Honduras, and Nicaragua. These countries "lack the financial resources or governance capacity" and have "heightened risk of instability induced migration and displacement flows" (U.S. National Director for Intelligence, 2021, 8). In Honduras, for example, climate change is the most widely cited reason to migrate, beating out employment opportunities or parents' fear for their children's safety from gangs and violence. In fact, 85 percent of those surveyed for their reasons to migrate from Central America stated that they had experienced at least three times climate disasters such as drought, hurricanes, flooding, crop failure, or food shortages.

Conditions are likely to worsen. According to the World Bank, 17 million people could be forced to abandon their homes because of climate change problems such as hurricanes, droughts, and floods. Nearly 5.8 million Latin Americans and Caribbean citizens could fall into extreme poverty by 2030, as climate change reduces access to safe drinking water and increases vulnerability to excessive heat and flooding (World Bank, 2023).

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Image 3. Annual southwestern border apprehensions



Source: Annual southwestern border apprehensions from Wu (2023).

“Climate change represents the greatest threat that humanity has ever faced. Unless rapid and sustained reduction in greenhouse gas emissions occurs quickly, global warming conditions may reach a point of irreversibility as “tipping points” provoke positive feedback cycles and a runaway greenhouse gas effect, conditions that would probably lead to an extinction level event for the human race.”

4. Conclusion

Climate change represents the greatest threat that humanity has ever faced. Unless rapid and sustained reduction in greenhouse gas emissions occurs quickly, global warming conditions

may reach a point of irreversibility as “tipping points” provoke positive feedback cycles and a runaway greenhouse gas effect, conditions that would probably lead to an extinction level event for the human race. (McKay, D.I.A. *et al.*, 2022; Ripple, W.J. *et al.*, 2023a; Kemp, L. *et al.*, 2022; Ripple, W. *et al.*, 2023b)

The United States is the second largest emitter of dangerous greenhouse gases, and the U.S. Department of Defense is the largest polluting organization in the world. This article examines four urgent actions that the U.S. Department of Defense is pursuing to prepare for the worst consequences of climate change: the threat against military installations and infrastructure; the requirement for heightened humanitarian responses; civil unrest and disorder; and increased migration and internal displacement. Word limits on this report prevent an examination of two other important topics, ones that are worthy of their own lengthy analysis: (1) how to reduce the greenhouse gas emissions from DOD infrastructure, such as heating and cooling for buildings, and (2) how to maintain a warfighting primacy as the world’s most powerful military while transforming equipment of the armed forces to renewable energy systems.

“Given the urgent challenges identified, we propose a comprehensive suite of eight essential and pragmatic recommendations.”

“These measures are not only crucial for reducing the DoD’s environmental footprint but also for maintaining operational readiness in a rapidly changing world. This strategic approach reflects an understanding of the intricate relationship between environmental stewardship and national security, marking a pivotal shift towards a more sustainable and resilient defense posture.”

Given the urgent challenges identified, we propose a comprehensive suite of eight essential and pragmatic recommendations:

Recommendations

- Conduct vulnerability assessments of military installations, particularly seeking to identify risks from drought, flooding, excessive heat, sea level rise, energy demand, land degradation, wildfires, and extreme weather.
- Plan and budget for energy and utility autonomy for installations to include electricity, fresh water, water treatment facilities, and food.
- Budget and construct water desalination systems using renewable energy systems.
- Construct cooling centers with renewable energy systems.
- Budget for basic human needs for refugee camps using the minimum humanitarian standards identified by The Sphere Project and The Humanitarian Charter and Minimum Standards (The Humanitarian Charter and Minimum Standards).
- Conduct exercises and rehearsals to establish refugee camps to include shelters (tents), solar lighting, adequate bathrooms, and food supplies.
- Work with civil defense forces, local organizations, non-government organizations, and other civil society groups to synchronize efforts and avoid redundancy of services.
- Identify other climate mitigation and adaptation efforts.

These measures are not only crucial for reducing the DoD’s environmental footprint but also for maintaining operational readiness in a rapidly changing world. This strategic approach reflects an understanding of the intricate relationship between environmental stewardship and national security, marking a pivotal shift towards a more sustainable and resilient defense posture. ■

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