



NATIONAL GEOGRAPHIC VIA AP IMAGES

Climate Change, Migration, and Conflict in Northwest Africa

Rising Dangers and Policy Options Across the Arc of Tension

Michael Werz and Laura Conley April 2012



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About the climate migration series

The intersecting challenges of climate change, human migration, and national and international instability present a unique challenge for U.S. foreign policy in the 21st century. These three factors are already combining in ways that undermine traditional understandings of national security and offer ample reason to revisit divisions between diplomacy, defense, and development policy.

This report is the second in a series of papers from the Center for American Progress that examines the implications of the climate change, migration, and security nexus. The series will highlight the overlays of these factors in key regions around the world and suggest ways in which U.S. policy must adapt to meet the challenges they present. This first regional report builds on the foundation provided by our framing paper, “[Climate Change, Migration, and Conflict](#).” In this report we focus on the implications of these trends in Northwest Africa, already one of the most volatile regions in the world. Further papers will focus on India and Bangladesh, the Andean Region, and China.

This series is closely linked to the Center for American Progress’s longstanding Sustainable Security project, which argues that our understanding of “security” must be broadened to meet the threats of the coming decades. Indeed, national security, human security, and collective security all have a part to play in achieving a safer and more equitable international environment. Our [Climate, Migration, and Security](#) project discusses and analyzes a series of regional key test cases for this comprehensive approach.

We are especially grateful to the Heinrich Böll Foundation in Washington, D.C., and to the ZEIT-Stiftung Gerd und Ebelin Bucerius in Hamburg for their continuing support of our climate, migration, and security work at the Center for American Progress.

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Introduction and summary

Northwest Africa is crisscrossed with climate, migration, and security challenges. From Nigeria to Niger, Algeria, and Morocco, this region has long been marked by labor migration, bringing workers from sub-Saharan Africa north to the Mediterranean coastline and Europe. To make that land journey, migrants often cross through the Sahel and Sahel-Saharan region, an area facing increasing environmental threats from the effects of climate change. The rising coastal sea level, desertification, drought, and the numerous other potential effects of climate change have the potential to increase the numbers of migrants and make these routes more hazardous in the future. Added to these challenges are ongoing security risks in the region, such as Nigeria's struggles with homegrown insurgents and the growing reach of Al Qaeda in the Islamic Maghreb, which has expanded out of Algeria.

For the United States and the international community, this region is critical because of its potential for future instability. The proximity of Algeria and Morocco to Europe, Nigeria's emerging role as one of Africa's most strategically important states, and Niger's ongoing struggles with governance and poverty all demand attention. Northwest Africa's porous borders and limited resources, which allow Al Qaeda in the Islamic Maghreb to flourish there, suggest that there is no time to waste in developing better and more effective policies for the region.

The climate, migration, and security nexus is a key test case because it is likely to exacerbate all of these existing risk factors. Climate change alone poses a daunting challenge. No matter what steps the global community takes to mitigate carbon emissions, a warmer climate is inevitable. The effects are already being felt today and are projected to intensify as climate change worsens. All of the world's regions and nations will experience some of the effects of this transformational challenge.

Changing environmental conditions are likely to prompt human migration, adding another layer of complexity. In the 21st century the world could see substantial numbers of climate migrants—people displaced by the slow or sudden onset of climate change. While experts continue to debate the details of the

causal relationship between climate change and human migration, climate change is expected to aggravate many existing migratory pressures around the world. Extreme weather events such as droughts and floods are projected to increase the number of sudden humanitarian crises in areas least able to cope, such as those already mired in poverty or prone to conflict.

Conflict and insecurity present the third layer of the nexus. This final layer is the most unpredictable, both within nations and transnationally, and will force the United States and the international community to confront climate and migration challenges within an increasingly unstructured security environment. The post-Cold War decades have seen a diffusion of national security interests and threats. U.S. security is increasingly focused on addressing nonstate actors and nontraditional sources of conflict and instability. The potential for the changing climate and associated migration to induce conflict or exacerbate existing instability is now recognized in national security circles.

This paper tracks how the overlays and intersections of climate change, migration, and security create an *arc of tension* in Northwest Africa comprising Nigeria, Niger, Algeria, and Morocco. These four nations, separated by the Sahara Desert, are rarely analyzed as a contiguous geopolitical region. Yet they are linked by existing international migration routes, which thread up from sub-Saharan Africa to the Mediterranean coast, moving people and cargo into Morocco, Algeria, Libya, and onward to Europe. Within the region, seasonal labor migration is widespread, particularly in areas vulnerable to rainfall fluctuations.

We seek to examine what will happen when the effects of climate change interact with internal and transnational security challenges along these well-traveled routes, and connect those questions to the strategic interests of the United States, Europe, and the transatlantic community. (See map of the region on page 13.)

Why we must engage in this arc of tension

Why should the U.S. and international policymakers be concerned about this nexus linking climate, migration, and security in Northwest Africa? Challenges related to the mitigation of carbon emissions as well as disaster risk management and economic and human security in the region alongside the need for a secure and stable global economy require strong partners and substantial capacities. Relatively minor investments can create significant progress toward improving

security and preparing the region for worsening climate conditions and increased migration. The costs of livelihood security, irrigation, improved migration monitors, and regional water cooperation pale alongside the likely future costs of humanitarian disaster, long-term security gaps, and conflict.

Further, among these particular countries, climate and migration patterns complicate a difficult political terrain. The United States and Europe are already involved in ongoing counterterrorism activities to help stem the growth of Al Qaeda in the Maghreb (found in Algeria, Niger, Mali, Mauritania, and potentially in Nigeria and Morocco as well) and its possible linkage to Al Qaeda in the Arabian Peninsula through this corridor.¹ The ongoing conflict in the oil-producing Niger Delta and the increasing violence of the insurgent Boko Haram movement in northern and central Nigeria, punctuated by the August 2011 suicide bombing of the U.N. building in Abuja, further underline the potential for instability, as does the Tuareg insurgency in northern Mali.

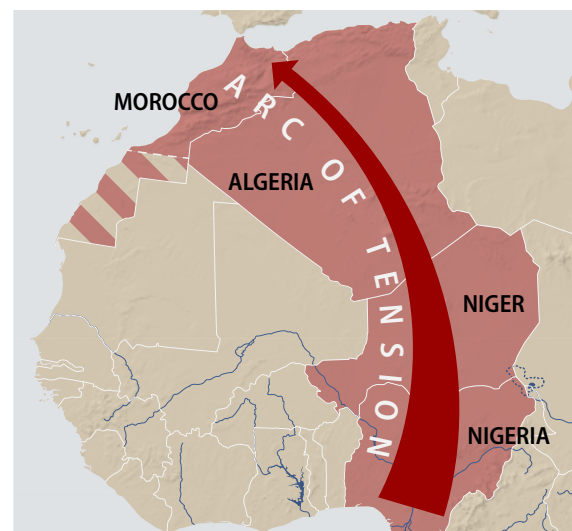
The United States and other countries have a vested interest in helping ensure that areas with weak or absent governance structures—where poverty, environmental degradation, and grievances over central governments and energy production coincide—do not become future recruiting grounds for extremists. The possible impacts of climate-related migration in such fragile situations could be destabilizing.

At the same time increased U.S. involvement in counterterrorism activities holds the potential for a serious backlash. Western involvement in its many forms could serve as a recruitment tool for those who see such efforts as a pretext for American military hegemony and establishing a forward presence in the region to secure future energy supplies and natural resources. Furthermore, geopolitical calculations of Western interest must acknowledge the added dimension of the uprisings in the Middle East and Maghreb. By focusing too narrowly on counterterrorism, U.S. policy risks being at odds with democratization movements. Maghreb states are also wary of how their cooperation with NATO on the Mediterranean Sea appears to domestic groups concerned with independence from the West.

This new pressure for transparency, both within the region's governments and regarding U.S. policy, puts a premium on nontraditional approaches to security—

Climate migration in northwest Africa

Nigeria, Niger, Algeria and Morocco bear the brunt of this growing security challenge



Source: Center for American Progress (2012).

especially with regards to human security as defined by the United Nations to ensure the security of the individual as opposed to the state.² This approach aims to mitigate threats to human conditions—including socioeconomic, political, food, health, environment, community, and personal safety—and maintain social stability.

Major U.S. imperatives in the region, including counterterrorism and reform, would be served by supporting, for example, Morocco's efforts to peacefully settle the Western Sahara dispute or Nigeria's efforts to quell ethno-religious violence. Establishing effective governance in Western Sahara and domestic stability in northern Nigeria will allay economic uncertainty in the region and reassure other states confronting North-South and Christian-Muslim divides. Periodic attacks on oil pipelines and facilities in the Niger Delta have already affected world oil prices, while widespread bank robberies blamed on Boko Haram undermine Nigeria's economic growth.³ Improving human security will lead to economic improvement.

Economic stability will in turn allow industrialized countries to cultivate greater investment in the region, which is sustaining 4 percent to 7 percent growth (with the exception of Niger at 2.5 percent), despite the lingering consequences of the Great Recession of 2007-2009. While U.S. foreign direct investment in these four countries remains predominantly in the oil and mining sectors, the region represents a significant future market for goods and services. Two-way trade between the United States and Nigeria totaled more than \$34 billion in 2010, and American foreign direct investment reached \$5.4 billion in 2009, making the United States the largest foreign investor in Nigeria.⁴

Moreover, Nigeria is already a critical partner in advancing U.S. humanitarian goals. The nation's involvement in six U.N. peace operations in Africa significantly reduces the burden on the United States in responding to regional crises.

As these countries' economies grow and diversify, they will be in a much stronger position to manage slow- and sudden-onset climate disasters, associated migration, and potential conflict. U.S. policy supporting these efforts in the region will have to balance the need for security and reform, such that these aspects are mutually reinforcing; too great a focus on either aspect will risk instability undermining reform or loss of credibility rendering security impossible.

The arc of tension begins in **Nigeria**, Africa's most populous state. Nigerians are already seeing early signs of climate change in a rising sea level, more frequent flooding, and outbreaks of disease in the southern megacity of Lagos, home to

Nigeria

- Africa's most populous country with 170 million people will remain a crucial strategic partner in tackling trade, security, and environmental concerns in Africa.
- Following independence from Britain in 1960 and the bloody Biafra civil war (1967–70), separatist movements continue to fester. Deep tensions have led to increasing violence in the north, particularly from extremist groups such as Boko Haram. In the south the armed struggle against the Movement for the Emancipation of the Niger Delta continues, exacerbated periodically by political disputes, such as that surrounding the election of Goodluck Jonathan as president in 2009.
- Despite the nation's status as the world's eighth-largest oil producer, Nigerians' quality of life, per capita incomes, and average life expectancy at birth have not improved in line with increasing oil profits. Indeed, the apportionment of oil revenues and government benefits underpin much of the social unrest in Nigeria.
- Past military coups, corruption, and natural resource grievances continue to hamper development.
- Lagos, Nigeria's megacity, is at risk from sea-level rise by 2015; an estimated 18 million Nigerians live in Lagos State, according to the U.N. Intergovernmental Panel on Climate Change.

more than 10 million people. In the northern part of the country, expanding desertification—which refers to the degradation of land productivity in dry land areas—has caused 200 villages to disappear.⁵

These opposing pressures, driven by climate change, are expected to push internal migrants toward the center of Nigeria. At the same time a rapidly growing and increasingly urban population is seeking greater economic opportunities. The combination of these demographic trends and economic aspirations spur many Nigerians to move north. Existing international migration routes link people leaving Nigeria to Niger, where they cross into the Maghreb states and potentially Europe.

Human mobility and climate change in Nigeria occur amid serious threats to national and local governance. The southern Niger Delta has supported an insurgency since the 1990s, driven in part by anger with corruption and the mismanagement of the profits from the region's booming oil industry. In the northern part of the country, religious tensions have turned violent, with more than 800 people having been killed in the central Nigerian city of Jos since January 2011.⁶ Boko Haram has undertaken attacks of increasing violence, including the U.N. bombing, and is behind a string of more than 100 armed bank robberies targeting lenders in north.⁷ A Christmas Day 2011 bombing outside Abuja killed more than 40 Christian worshippers, provoking a brutal police crackdown.⁸



People pass by dead bodies amid burning tires and debris in a street in Onitsha, Nigeria, in 2006.

THE ASSOCIATED PRESS/GEORGE OSODI

Although the unrest in the Niger Delta and the violence in the north are geographically distinct, they both have their roots in underlying dissatisfaction with a government that has failed to sustain an inclusive, accountable, and transparent state. As the effects of climate change worsen, even more will be demanded of Nigeria's limited governance capacity.

Migrants from Nigeria and other sub-Saharan states who reach **Niger**, the second link in the arc of tension, enter one of Africa's most desperate states. Niger has the world's second highest fertility rate and a median age of only 15 years. Most of the booming population is dependent on rain-fed agriculture, but acreage of arable land has decreased dramatically over the past 50 years, and frequent droughts have impoverished and indebted many Nigeriens. In 2010 a severe drought left 7.1 million Nigeriens without adequate food. Climate change is expected to make the country hotter and more prone to drought, erosion, and loss of forested land, exacerbating already difficult conditions.

Niger

- Between gaining independence from France in 1960 and 1991, Niger had a one-party system. Multiparty elections established a democratic government in 1993, but institutions remained profoundly weak. The two-term president Mamadou Tandja attempted to amend the constitution to prolong his presidency, resulting in a 2010 military coup and a transitional military junta. Former Prime Minister Mahamadou Issoufou and his social-democratic party won the elections in 2011.
- Niger is deeply impoverished and consistently ranks near the bottom of the United Nations Development Programme's Human Development Index.
- Longstanding grievances between the Nigerien government and Tuareg rebels in the northern region, related to the underdevelopment of the vast and insecure space along the border of the Sahara, pose serious security risks.
- With a population of about 16 million people, Niger's per capita income is just \$700. The country is heavily reliant upon rain-fed agriculture, which accounted for 39 percent of gross domestic product and 90 percent of the labor force in 2009.
- Niger experiences devastating droughts. The 2005 drought—coupled with a locust infestation—led to food shortages for as many as 2.5 million Nigeriens. Food security continues to put the country at risk.

Niger also faces ongoing international and internal migration. Due to pressures from desertification and drought, some Nigerien pastoralists have shifted their migratory routes southwards into Nigeria in search of animal fodder and better grazing. In addition, unusual flooding in 2010 damaged many homes and farmland, creating an internal refugee situation and prompting other Nigeriens to seek shelter and employment in Nigeria, Libya, and the Ivory Coast.

Agadez, the largest city in northern Niger, is a key waypoint for sub-Saharan migrants moving north, and a hotspot on the arc of tension. While estimates of the number transiting the country on this path are scarce, some research indicates that at least 65,000 Sub-Saharan migrants passed through Niger toward Algeria and Libya in 2003 alone.⁹ About half of these migrants are thought to come from the underdeveloped central and southern parts of Nigeria.

Niger also faces a difficult security situation, including conflict over rangeland and water wells in the southeast and the north (especially near the Malian border), mineral-related conflict in the north, and the pervasive threat of Al Qaeda in the Islamic Maghreb. In northern Agadez, home to the world's second-largest uranium mine, a 2007 drought-driven rebellion by the Tuareg people led the government to dispatch 4,000 troops.¹⁰

Algeria

- Algeria gained independence from France in 1962, after eight years of fighting.
- Since 1982 Algerian Islamists and the government have had a highly adversarial relationship marked by repeated states of emergency and the forcible suppression of demonstrations. Algeria's first serious opposition party, the Islamic Salvation Front, posed a major threat to the governing party and the military. The Front was outlawed, sparking a decade of violence which resulted in 200,000 deaths and an estimated 1 million internally displaced persons²⁴
- During the 1990s and early 2000s, other groups, notably the Armed Islamic Group and the Islamic Salvation Army, joined the Islamic Salvation Front's antigovernment struggle, engaging in political assassinations, targeted killing of foreigners, riots, and attacks on civilians.²⁵
- Financed through ransoms, drug sales, and arms smuggling, Al Qaeda's North Africa wing, Al Qaeda in the Islamic Maghreb, has claimed responsibility for a range of violent acts in North Africa, including the 2007 bombing of the U.N. headquarters in Algiers and repeated kidnappings of foreigners in Algeria and neighboring countries.

Additionally, Niger is within the range of operations of Al Qaeda in the Islamic Maghreb, which is known to engage in kidnapping and drug trafficking in the broader region. Agricultural and pastoral livelihoods have been made more difficult by the effects of climate change; this has translated to increasing numbers of disenfranchised youth, who security experts believe are more easily recruited to assist Al Qaeda in return for money and food.

Furthermore, some of the effects of climate change, such as desertification and flooding, are thought to benefit Al Qaeda in the Islamic Maghreb by depopulating rural areas in which the group can then operate more freely. The Nigerien government has reorganized its security services in the hope of encouraging Nigerians not to engage in violent acts; however, the government has been accused of being incompetent or even unwilling to take action even when information about Al Qaeda is received.¹¹

Algeria is the third link in the arc of tension. Like much of the Maghreb region, Algeria faces a future made increasingly difficult by the effects of climate change, including increasing temperatures, decreasing rainfall, and a rising sea level. Water is of particular concern—the country already ranks second among African states in terms of water scarcity—as is desertification.

Additionally, climate variability in sub-Saharan Africa has the potential to indirectly affect Algeria by contributing to migration along the arc of tension and

Morocco

- Gained independence from France in 1956. Spain maintains the enclaves of Ceuta and Melilla (unrecognized by Morocco) in the north, attracting illegal migrants attempting to enter the European Union.
- In 1999 King Mohammed VI came to power, immediately freeing some 8,000 political prisoners and reducing the sentences of another 30,000.
- The 2002 and 2007 parliamentary elections were regarded as the first free and fair elections in the country's history.
- Despite strong economic growth, poverty remains a serious challenge, exceeding 25 percent in rural areas. Like Algeria, Morocco also struggles with high unemployment, particularly among young urban dwellers.
- The country has confronted several domestic Islamic terrorist organizations, such as the (largely defeated) Moroccan Islamic Combatant Group, involved in the terrorist attacks in Madrid in 2004, Salafiya Jihadiya, and Al Qaeda cells allegedly connected to Al Qaeda in the Islamic Maghreb. Regional cooperation has been limited by poor relations between Morocco and Algeria.

other migratory paths. The southern spread of the Sahara Desert is already thought to contribute to seasonal migration from sub-Saharan Africa toward Algeria and the Maghreb.

Algeria experienced a decade of internal violence in the 1990s. This conflict gave rise to the terrorist organization that eventually became Al Qaeda in the Islamic Maghreb. Although violence has declined significantly since the early 2000s, Algeria has still experienced close to 1,000 incidents of political violence since the September 11, 2001 Al Qaeda attacks on New York City and Washington, including kidnappings and high-profile bombings.¹² Large ungoverned spaces and poor border controls allow migrants to move north from Niger, but also create space in which groups such as Al Qaeda can operate. Tamanrasset, a major way station for migrants in southern Algeria, is the new home of a joint military command center between Algeria, Mauritania, Mali, and Niger, which is meant to confront the threat from Al Qaeda in the Islamic Maghreb.

The arc of tension ends in **Morocco**, historically one of Africa's most stable states. Like Algeria, water shortage due to climate change is a serious concern in Morocco. Rainfall is projected to decrease by roughly 20 percent by the end of the century, according to a range of projections.¹³ The country faces a rising sea level along the coast, including in agricultural areas in the north, which may lead to increasing salinity in freshwater aquifers. With 44 percent of the country's work-

force engaged in agriculture, this development poses a fundamental challenge to the current Moroccan economy. Ultimately, the shifting climate may result in internal migration, forcing rural populations to move in search of more fertile land and eroding the geographic separation of ethnic groups.

Morocco is also under pressure from existing flows of international migrants, many of whom enter the country in an attempt to continue on to Europe. Two Spanish enclaves on the Mediterranean coast, Ceuta and Melilla, are key destinations for Africans seeking to enter the European Union. In 2005 efforts by hundreds of migrants to break through the fences surrounding the enclaves led to several deaths and resulted in the erection of more sophisticated border fences. While the impetus for migration into Morocco is difficult to determine with precision, researchers focused on the country point to decreasing rain and lower crop yields in sub-Saharan Africa as a factor in the decision to migrate.

The same enclaves that have attracted migrants seeking a chance to enter Europe have also drawn the attention of Al Qaeda. In 2006 Ayman al-Zawahiri, then Al Qaeda's second in command, called for the liberation of Ceuta and Melilla. Thus far the terrorist network has reportedly not been successful in carrying out an attack in Morocco. An April 2011 café bombing, however, bore the hallmarks of an Al Qaeda operation.¹⁴ In January 2011 the Moroccan government arrested 27 alleged Al Qaeda in the Islamic Maghreb members along the border with the Western Sahara.¹⁵

What policymakers can do about this arc of tension

The overlapping challenges of climate change, migration, and security in these four nations pose a critical and complex problem for policymakers. While it is difficult to draw a direct line of causality from specific climate change hazards to the decision to migrate or to a particular conflict, the interrelationships between these factors mean that viewing and addressing them in isolation is no longer sufficient.

Indeed, this particular nexus demands policy solutions that cut across levels of governance and drive the U.S. government to synthesize traditionally distinct fields such as defense, diplomacy, and development. These new, complex challenges will force the United States and the international community to finally break from a Cold War-era understanding of security and move toward a more individual-based concept of human security.



At a policy level, the Obama administration's first National Security Strategy document in 2010 prioritized conflict prevention, peacekeeping, counterterrorism, access to markets, and the protection of "carbon sinks" (places in nature that absorb carbon out of the atmosphere) in Africa, while the 2011 National Military Strategy emphasized security partnerships in the Trans-Sahel region.¹⁶ These current efforts are limited and not yet institutionalized, and still do not fully incorporate the environmental realities underlying the challenges to the region.

Spanish soldiers patrol the border between Morocco and Spain's enclave of Melilla, in north Africa, Saturday, Oct. 8, 2005. Human rights group Amnesty International said it was illegal to expel African immigrants from the Spanish enclaves of Ceuta and Melilla to Morocco.

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Overall, U.S. foreign assistance to the region is approximately \$668 million. Nigeria receives \$614 million, primarily for health and police training; Algeria \$2.5 million, for counterterrorism and military training; Niger \$17 million, mostly for food aid; and Morocco \$35 million, for military and development assistance.¹⁷

Internationally, the International Monetary Fund currently has no loans to the four countries. Algeria has accepted equity investments and loans totaling \$82

million from the International Finance Corporation, the equity investment arm of the World Bank, but no loans from the World Bank itself.¹⁸ Nigeria has \$4 billion in outstanding loans to the World Bank, including its cheapest lending arm, the International Development Association, with 2011 loans close to half a billion dollars aimed at stoking economic growth and employment in non-oil sectors.¹⁹

The World Bank maintains a total commitment of \$1.5 billion in Morocco and plans to disburse \$200 million more in 2012 in investment lending.²⁰ In addition, the bank has disbursed nearly \$1.6 billion to Niger, including \$70 million in 2010 and \$41 million in 2011.²¹ And the World Bank's Multilateral Investment Guarantee Agency is currently mobilizing \$1 billion in insurance capacity for the Middle East and North Africa, including Morocco, to ensure that foreign direct investment in the region does not suffer because of the nearby Arab Spring revolutions.²²

Lastly, the U.S. military's counterterrorism commitment to the region was bolstered by the creation of African Command, or AFRICOM, in 2008, tasked with developing the region's professional military capabilities.²³ In 2006 the United States allocated \$500 million for the Trans-Saharan Counter-Terrorism Partnership to train and equip African armed forces, including the four states in this report.

These are the traditional instruments of development and security, but the conversation about national security and military strategy in the United States is changing. With the U.S. government facing at least several years of austerity budgets, defense and foreign affairs spending will not escape the cuts unscathed. If properly executed, budget cuts could pare down unnecessary spending in the United States' massive defense budget (now larger than at the height of President Ronald Reagan's Cold War buildup), while protecting the core defense, diplomacy, and development capabilities needed to confront complex crises.

If mishandled, though, the cuts could have a dramatic impact on nonmilitary international affairs funding. Rebalancing and reorienting these capabilities will help the United States create more effective and efficient programs in countries like Nigeria, Niger, Algeria, and Morocco. The United States cannot hope to encourage stable, fair, and effective governance if we continue to understaff and underfund our civilian aid and foreign-affairs capabilities. Thus, a thorough review of the relationship between defense, diplomacy, and development is required. The division of labor between these three branches of our foreign and security policy establishment must be adapted to a new and rapidly changing post-Cold War environment.

Overlay of climate, security, migration challenges across the arc of tension



This report examines the arc of tension to understand how prepared we are to achieve this new balance. Through analysis of the climate, migration, and security factors outlined above, it lays out a series of recommendations to reorient U.S. and international policy. These recommendations are also intended to inform the transatlantic and multilateral conversation on the climate, migration, and security nexus. Briefly, we recommend a new approach.

Niger and Nigeria are rarely discussed in conjunction with Algeria and Morocco. The first two countries are usually considered separately, as part of Sub-Saharan Africa and the Maghreb, respectively. The United States pursues very different forms of engagement, development assistance, and diplomacy with each of these countries, despite existing migratory flows that link all four nations. We argue that this practice is outdated.

Secondly, the nexus of climate change, migration, and conflict produces pressure points that need comprehensive regional approaches. From a regional perspective, and based upon four case studies, we highlight priority issues facing the United States, the international community, and regional policy actors in addressing this unprecedented challenge and provide recommendations to shape the future of U.S. and international foreign assistance.

The arc of tension

Northwest Africa will face a set of climate challenges that will reach across geographically and politically disconnected states, and force governments to plan for widely disparate effects within single countries. In particular, the availability of freshwater—too much, or too little—will become an increasingly urgent issue. Morocco and Algeria are both projected to face freshwater scarcity by 2025.²⁶ Despite predictions that areas of Southern Algeria will see increased water availability, the Northern region, home to the majority of the country's population is, may see a 10 percent to 20 percent reduction in available water.²⁷

Climate change, along with human activity, will also affect the availability of arable land in Northwest Africa. Desertification, defined by the U.N. International Fund for Agricultural Development as “the persistent degradation of dry land ecosystems by human activities and climatic variations,” is slowly squeezing livelihoods dependent upon natural resources, and thus the capacity of citizens in the region to support themselves.²⁸

Nigeria, for example, is already losing about 3,500 square kilometers (1,350 square miles) of land to desertification each year, which may be exacerbated by climate change in some situations.²⁹ Nigeria and its northern neighbor, Niger, both have sizable agricultural sectors. As of 2006, 90 percent of Niger's population was employed in the agricultural sector,³⁰ and it's estimated that up to 70 percent of Nigerians work in the same sector.³¹ As of 2009, agriculture sustained 40 percent of Nigeria's gross domestic product.³² Further stress on this critical sector of the economy would have serious consequences for the country and its citizens. The fact that agriculture is simultaneously impacted by and a driver of desertification further complicates the picture.

Coastal regions of Northwest Africa may find their populations at risk from a rising sea level and tropical storms. Half of the population of Lagos, home to 15 million people, lives only six feet above sea level.³³ In 2009 the Center for Global Development reported that climate change is likely to increase the intensity of

The intersection of climate change, climate migration, and human insecurity in Northwest Africa

- Water scarcity, desertification, a rising sea level, and the other effects of climate change will pose serious adaptation and mitigation challenges for African states.
- Weak governance, internal conflict, and transnational terrorism already put pressure on the capacity of states along the arc of tension.
- Existing internal and international migration routes in Northwest Africa cross areas of climate stress and security vulnerability.

cyclone storm surges, with potentially devastating effects for coastal populations in Northwest Africa and elsewhere. While the precise effects of this phenomenon are unknown, the center found that all of Nigeria's coastal agricultural land is at risk from the effects of intensified storm surges.³⁴

Moreover, the Nigerian Environmental Study Action Team identified “possible submergence of oil wells and related infrastructure” as one of the country's vulnerabilities to climate change.³⁵ In places, especially Forcados in the Delta region, some oil wells have already been lost to the ocean due to erosion.³⁶ The Niger Delta currently accounts for slightly more than 8 percent of U.S. crude oil imports,³⁷ and several of the oil constructions are close enough to the shoreline to be affected by sea level rises.³⁸ The worst effects of climate change could damage aspects of the oil industry, resulting in loss of income for Nigeria, energy security concerns in the United States and Europe, and environmental damage in the region.

About three-quarters of arable rain-fed land in the Sahel will be greatly affected by climate change, dramatically altering the region's physical and political landscapes in the near future.³⁹ Nigeria and Niger share a porous frontier of more than 900 miles, with border communities that have maintained close relations for hundreds of years. While seasonal migration has always played a huge role in the lives of the people in this region, population growth and drought are harming the profitability of seasonal migration; increasing numbers of migrants have made work more difficult to find. Niger's population is projected to more than quadruple, and Nigeria's population to double or triple by 2035.⁴⁰ If these countries grow as forecasted, one consequence may be ongoing and prolonged food crises. Indeed, it is the threat of food insecurity that has caused Africans to “already see climate change and security through the same lens.”⁴¹

Growing global demand for fossil fuels and alternatives such as uranium further enhances the potential for conflict in economies that depend upon extractive industries for government revenue. This adds a geopolitical dimension to regional or local conflict. Nigeria's oil sector provides 95 percent of its export earnings and about 80 percent of its fiscal budget, despite the fact that 70 percent of Nigerians are dependent upon the agricultural sector for their personal livelihood.⁴²

Niger, meanwhile, is a landlocked economy dependent upon huge uranium deposits—which accounted for 64 percent of national exports in 2009—as well as oil, gold, coal, and other mineral resources.⁴³ The extreme poverty—with per capita income of about \$800—and lack of employment offer recruitment



opportunities for criminal groups already involved in extortion, corruption, armed rebellion, and terrorist activities.⁴⁴ Unemployed migrants and young people are more vulnerable to these illegal groups.

Linking the environmentally, religiously, and ethnically diverse regions of West Africa, the Maghreb, and sub-Saharan Africa, Nigeria and Niger function as connector states for transit migrants en route from Africa to Europe. Nigeria and Niger are also the unintended destinations for migrants who fail to complete their journey; the majority of migrants expelled from Libya and Algeria, for example, end up in Niger.⁴⁵ In March 2011 the Red Cross announced it would set up emergency shelters for several hundred people in the city of Agadez that was exposed to major floods and also is a traditional stop for migrants whose numbers have grown in the wake of the Libyan conflict. The International Organization for Migration estimated in April 2011 that 30,000 refugees from Libya had sought safety in Niger.⁴⁶

A Fulani nomad woman collects drinking water for her family's donkeys, sheep, and cattle, in Gadabeji, Niger in 2010. At this time of year, the Gadabeji Reserve should be a refuge for the nomadic tribes who travel across the moonscape deserts of Niger to graze their cattle. But the grass is meager, not enough even for the small goats, after a drought killed off the last year's crops.

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The Sahel corridor also serves as a transshipment point for cocaine transported to Africa from Brazil, Peru, and Colombia destined for the European market, making these connector states even more susceptible to illicit economies. Nigeria and Niger therefore face a daunting combination of security risks ranging from desertification, population growth, and migration pressures to weather-induced disasters and the influx of drug smugglers and political extremists—trends that could converge with increasingly destructive results as the effects of climate change accelerate and worsen.

To the north, Algeria and Morocco present unique challenges of their own. The Maghreb states of North Africa are often grouped with Middle Eastern countries as a contiguous geopolitical region, yet the northward flow of sub-Saharan migrants also connects these states to the rest of Africa, and thus to the effects of climate change and conflict on sub-Saharan migrant-sending states. Algeria and Morocco will face climate challenges of their own, most critically water scarcity, alongside serious internal security threats from Al Qaeda in the Islamic Maghreb and more localized extremist groups.

Ultimately, the combination of climate change, migration, and security will pressure these states from all sides. The northward movement of migrants into the Maghreb, whether driven by conflict, climate, or other factors, will provoke increasing pressure from the European Union to control illegal border crossings into the continent. At the same time, Algeria and Morocco will confront internal pressure for reform in the face of the Arab Spring uprisings to their east. Whether and how they manage these competing tensions will have important ramifications for regional stability and thus for U.S. security interests more broadly.

Desertification, water fluctuations, a rising sea level, storm surges, and other effects of climate change, combined with Northwest Africa's already harsh climate, will put severe strain on a region that possesses limited resources and capacity to deal with the consequences of climate change. As a result the ranks of the region's already numerous migrants will grow in numbers. When, where, and how these people migrate will have consequences for the region's environment, economy, stability, and security.

We will now look at each of these countries in more detail to outline the unique yet often common problems they face due to climate migration, conflict, and security in the 21st century.

Nigeria

Climate change is expected to affect Nigeria with desertification and flooding, resulting in migration from the north and south. These moves will put enormous pressure on Nigeria's middle-belt in the Guinea Savannah. Nigerians are already seeing the impacts of a rising sea level, more frequent storms, flooding, and resulting outbreaks of disease in the megacity of Lagos, as well as drought and food insecurity in the northern region of the country.

Conflict, violence, and kidnapping have long plagued the Niger Delta because of the country's heavy reliance on the oil sector for revenues that do little to improve the lives of local residents. Growing desertification in the north has led to heightened tensions between and within pastoral and agricultural communities, demonstrating how the competition for natural resources can become intermingled with ethnic and religious conflict.

Nigeria is the fifth-largest supplier of U.S. crude oil,⁴⁷ but corruption and mismanagement have in the past swallowed as much 40 percent of Nigeria's \$20 billion annual oil income, according to former Nigeria anticorruption chief Nuhu Ribadu.⁴⁸ Rampant corruption in the petroleum industry continues to be a major problem, threatening economic growth and stoking discontent.⁴⁹ Nigerian officials recently opened an investigation into a more than \$4 billion annual discrepancy between the amount of subsidized petrol purchased and the amount consumed by Nigerians.⁵⁰

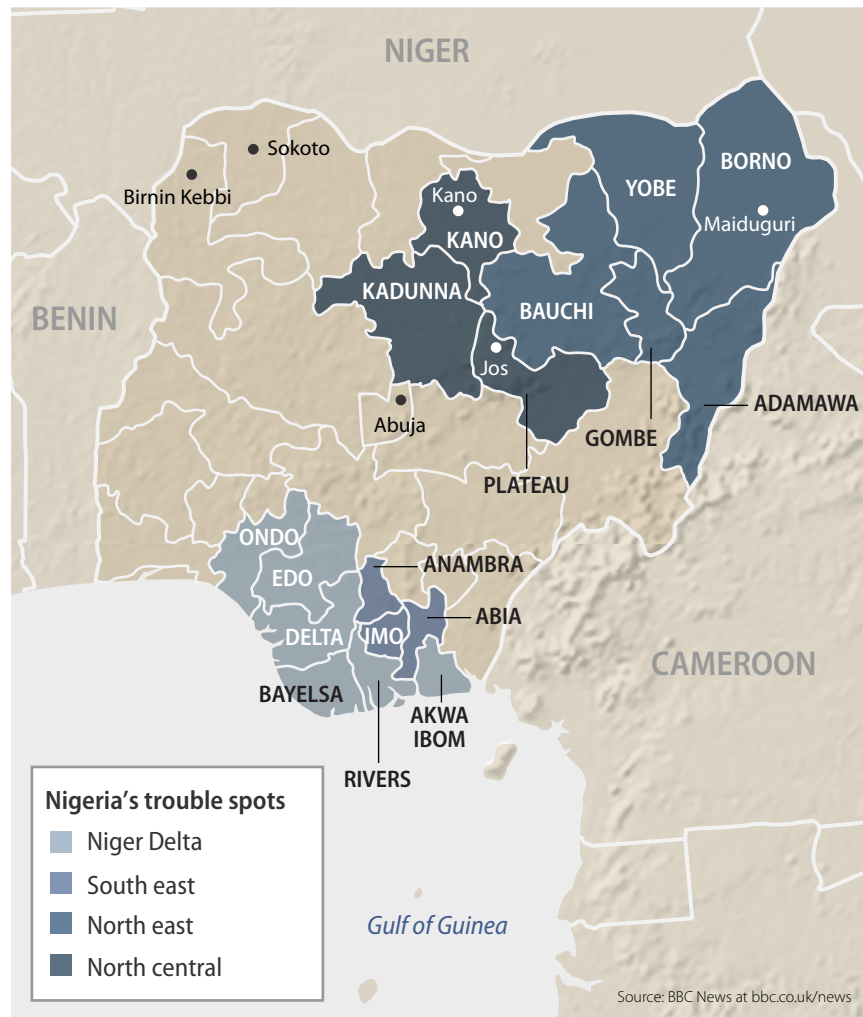
This loss of key revenue and economic support is a partial cause of the insurgency in the Niger Delta. Since the 1990s local groups have fought back against multinational oil companies that they believed were exploiting them, sabotaging equipment, and kidnapping or murdering personnel. The Niger Delta insurgents also decry the compliance and neglect of the federal government, which has not delivered any democratic dividend since Nigeria's return to civilian rule in 1999. This situation is made even more perilous given the Niger Delta population's dependence on the environment; fishing and agriculture are the two traditional

Nigeria: Fast facts

- Rapid population growth and a population with an average age of 19 are placing enormous demographic pressures on the economy and the environment.
- Rapid desertification has already caused 200 northern villages to disappear.
- Climate change appears to be accelerating Nigerian urbanization with potentially dangerous results.
- Weak governance, corruption, and a long history of ethnic tensions undermine Nigeria's ability to deal with additional shocks from climate change.

Nigeria's security challenges

Nigeria faces Islamist militancy in the north-east, where Boko Haram is active. In the central northern regions, ethno-religious clashes and some kidnapping occur along the border between the mainly Muslim north and Christian and animist south. The Niger Delta has long faced oil-theft, kidnapping, and piracy.



occupations in the Delta. The United Nations estimates that agriculture, forestry, and fishing still account for more than 40 percent of the region's employment, despite the decline of these traditional livelihoods with the ascendancy of the oil industry.⁵¹

Alongside the Delta conflict, unrest and religious tension in the north is requiring increasing government resources. A five-day uprising in 2010 resulted in the deaths of more than 700 people in Borno State, and more than 800 people have been killed in 2011 in Jos, a major city in central Nigeria, as religious tensions peaked over land disputes. Most recently, Boko Haram—a militant Islamist group decrying “Western” ideas and the marginalization of northern Nigerians—has drastically escalated the violence. Besides the bombing of U.N. headquarters in Abuja and the bloody Christmas Day 2011 attacks already mentioned, the group was responsible for

attacks in the northern city of Kano, which killed roughly 150 people.⁵²

Even though all of this unrest takes place at opposite ends of the country and for ostensibly different reasons, it is ultimately tied to the federal government's inability to be genuinely inclusive, accountable, and transparent. These issues will have serious repercussions as climate change continues to impact the conditions of traditional livelihoods.



Demographic developments are exacerbating environmental degradation and conflict in Nigeria. The country is home to more than 15 percent of the entire African population and the median age is just 19 years. Nigeria's total population is projected to double to roughly 320 million by 2040.⁵³ Alone, the Niger Delta population is set to total more than 45 million people by 2020.⁵⁴

In addition, climate change is already affecting Nigeria in significant ways. As mentioned, roughly 1,350 square miles of Nigerian land turns to desert each year, driving farmers and herders south from the Sahel and into cities.⁵⁵ Agriculture comprises up to 40 percent of Nigeria's gross domestic product—the largest measure of economic growth—and 75 percent of employment, and has shrunk since the petroleum industry boom in the 1980s. Making matters worse, as noted above, the U.N. Intergovernmental Panel on Climate Change has identified Lagos, one of West Africa's megacities, to be at risk from sea-level rise by 2015.

A damaged car at the site of the police headquarters bombed by a suicide bomber in Kano, Nigeria on Jan. 22, 2012. More than 150 people were killed in a series of coordinated attacks by a radical Islamist sect in north Nigeria's largest city, according to an internal Red Cross document seen Sunday by an Associated Press reporter.

THE ASSOCIATED PRESS/SUNDAY ALAMBA

Lake Chad, which marks Nigeria's northeast border, has been reduced to one-twentieth its size during the 1960s due to a drier climate and changing water managements. Dr. Seidu Mohammed, director general of Nigeria's National Space Research and Development Agency, has said this has harmed about 25 million people by disrupting livelihoods such as farming and fishing.⁵⁶

Changing weather patterns have additional destabilizing effects; "We had rainy and dry season before, now it's all mixed up," says Yinka Adeyemi, an advisor for the U.N. Economic Commission for Africa. Human mobility is a consequence of climate change that has created other problems. Adeyemi explains, "The scarcity and shortage of water in the area creates competition between man and cattle. It's like Darfur in certain areas of Nigeria."⁵⁷

A recent survey indicates 200 villages in northern Nigeria have disappeared due to desertification.⁵⁸ Desertification is also considered the cause of food shortages that have forced Fulani herdsmen worried about unreliable weather and disease to migrate southwest in search of cattle grazing areas, where they are joined by migrants from Niger also seeking better living conditions. Victor Fodeke, head of the Climate Change Unit of Nigeria's government, describes the problem:

*[I came] face to face with this issue in 2009, in [the] Katsina and Borno States—frontline states. The Governor was trying to deal with nomadic tribes looking for water and grazing, who were moving from climate impacted areas with lost arable land and water and overrunning the local populations, coming from Niger and Chad.*⁵⁹

The arrival of migrants was also considered a trigger for the recent ethno-religious violence in Jos and Kaduna, as well as a series of armed conflicts between pastoralists and farming Hausa communities, the former claiming economic exclusion and manipulation, the latter claiming theft and Jihadism.⁶⁰

The April 2011 presidential election was, in many ways, the most free and fair election Nigeria has seen to date, but it was also the most violent. Even though there are high hopes for the newly established judicial commission and upcoming reconciliation conference, the election outcome has divided the country in a way that can only contribute to instability.

Former Vice President Goodluck Jonathan decisively defeated Muhammadu Buhari, a major general in the Nigerian army from the more religious and traditional north-



ern regions. Jonathan's victory sparked controversy, with political opponents arguing that a representative from the predominantly Muslim north deserved the office after years of rule from the south. Accusations of electoral fraud in the aftermath of the poll led to violence in northern Nigeria, as people protested a result they feared would lead to continued marginalization for the north.

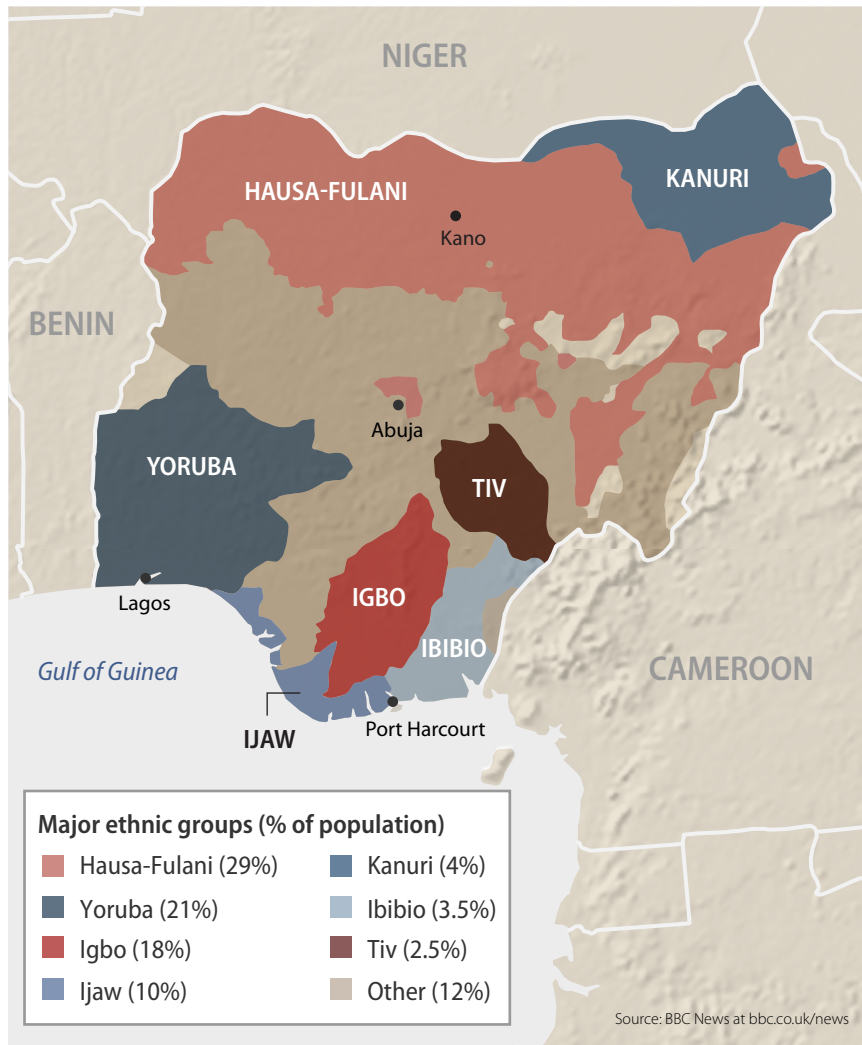
While the scaled up attacks of Boko Haram have been cast by many media sources as part of the narrative of global jihad, approaching the problem from this angle ignores the local roots of the discontent. Boko Haram plays on resentment among the predominantly Muslim Hausa-Fulani, who feel marginalized and ignored by the central government. Ethnic tensions between the predominantly Christian Yoruba and the Hausa-Fulani also feed the violence, exacerbated by migration—partly driven by more difficult environmental conditions in the north—of Hausa-Fulani into traditionally Yoruba lands.⁶¹ Once again, it is

A young boy takes water from Lake Chad to drink, in Koudouboul, Chad, in 2006. The lake that once provided adequate livelihoods for 20 million people in west-central Africa, from Chad, Nigeria, Cameroon and Niger, has lost 90 per cent of its surface area in 30 years.

THE ASSOCIATED PRESS/CHRISTOPHE ENA

Nigeria's ethnic composition

Nigeria's 170 million people are divided between numerous ethno-linguistic groups and also along religious lines. Broadly, the Hausa-Fulani people based in the north are mostly Muslims. The Yorubas of the south-west are divided between Muslims and Christians, while the Igbos of the south-east and neighboring groups are mostly Christian or animist. The Middle Belt is home to hundreds of groups with different beliefs, and around Jos there are frequent clashes between Hausa-speaking Muslims and Christian members of the Berom community.



easy to see how the increasing pressures of climate change could contribute to these incidents of social unrest and violence.

Yet the insecurity caused by climate-driven mobility migration is not limited to outright violence or militarism. Flooding throughout 2010 in the Niger Delta and in northwestern Nigeria also presented a serious challenge, testing the government's ability to organize temporary shelters and relocate local populations. Delta communities are highly vulnerable and climate-related disasters can undermine the most basic human security. The 2010 flood refugees faced personal security issues such as theft, undernourishment, and malaria, and often return to low-lying, high-risk areas. Rachel Okegbola, director of the Gender Training and Development Network in Nigeria, describes the problem:

The issue becomes a shelter problem [and] we call them refugee camps. The government has been moving people

from location to location. Women ... have to move with children and [their] whole house; they go without food and [are] undernourished. These are the security issues arising from migration ... the government can't handle it alone.⁶²

Responding to these challenges

How are responses to such multidimensional challenges currently being conceptualized? While there is consensus on the need to address livelihood creation as part of managing migration or adapting to climate change, approaches to livelihood creation vary in the context of the intersection of migration and climate change. The views of experts in the region fall into roughly four categories:

- The lack of visible investments in infrastructure
- Poor disaster preparedness and management skills
- The need for flexible financial mechanisms to cope with climate change
- The need to create ecosystem and conservation services

Let's look at each of them briefly in turn.

The lack of visible investments in infrastructure

Outside of the oil industry, Nigeria lacks meaningful investment in important infrastructure needs. For many marginalized areas there is little hope for new economic opportunities and few sources for reliable information about the challenges they face or potential adaptive responses. Investment in transportation and information infrastructure helps marginalized people adapt to micro changes on many levels. Such investments can provide economic opportunity, improve coordination and delivery of essential services, raise awareness of future challenges, and improve responses to crises.

In Nigeria many people facing insecurity from the challenges outlined migrate with little knowledge of what lies ahead, and the suburbs of Lagos and other cities become a “staging ground” for herders migrating toward urban centers in search of work.⁶³ This is one example of how investments in infrastructure could address the nexus of climate change, migration, and security.

Poor disaster preparedness and management skills

Given the lack of disaster preparedness, community-created emergency structures, including procedures and training for flood survival must be built. If these

structures could be institutionalized and expanded to include stabilization or livelihood programs, there would be a systematic and structured means of redeploying labor after disasters.

The need for flexible financial mechanisms to cope with climate change

Another strategic approach looks at flexible financial mechanisms to manage climate change adaptation. The most obvious option is to provide agricultural subsidies to farmers and herders during floods and drought. Other proposals include implementing exchange rate controls during famine and efficiency gains in workers' remittances from abroad. These measures could create a highly enabling macroeconomic environment in which climate change adaptation is the responsibility of individuals. The challenge will be to secure equal wealth distribution to each Nigerian state and target support for those most likely to be affected by climate change.

The need to create ecosystem and conservation services

An emphasis on lower-cost government or foreign aid interventions that enable people to stay where they are without creating new jobs is a perspective known as *ecosystem and conservation services*—providing livelihoods that can make communities more economically resilient to climate change. These techniques include reducing deforestation (85 percent of it goes to firewood) through the distribution of cook stoves, dry-season farming, drip irrigation, and efficient rainwater use, all of which reduce human impact on the local ecosystem.

A “living with floods” focus on watershed erosion control and coastal mangrove protection also reduces vulnerability to extreme weather events. But it’s important to bear in mind that engineered solutions to adaptation (dams being a primary example) can unintentionally work against natural solutions.⁶⁴

Incorporating these ideas in Nigeria

The Nigerian government will likely incorporate some of the ideas outlined above in its current efforts to formulate plans for adaptation and disaster response. But it is unlikely a migration-oriented response will be included, because most people wish to return to disaster-affected areas, making it difficult for the government to

pursue the issue of permanent resettlement. There are also significant concerns about the government's ability and willingness to implement its plans in a meaningful way. While Nigerians have little faith in their government to do anything for them—at local, regional, or federal levels—the 2011 presidential election presents an important opportunity to shift how the regime is viewed since it created a solid majority for President Goodluck Jonathan.

In the meantime the government is moving toward creation of a new Climate Change Commission apart from the Environment Ministry. “Climate change will happen, [and] we have to prepare for adaptation,” warns U.N. advisor Yinka Adeyemi, adding, “We are losing the ice, water levels will rise, [and] people will be displaced. Africa needs to adapt.”⁶⁵ Given the responsibilities of developed countries for causing climate change, Nigerian adaptation, like most adaptation efforts globally, has thus far depended upon foreign assistance. This arrangement is particularly vulnerable to corruption, presenting a tremendous obstacle in a country like Nigeria.

That equation, however, has the potential to change. Almost half of global economic growth in 2010 occurred within Africa's domestic economies. Nigeria averaged annual growth of 7.4 percent between 2003 and 2009. Meanwhile, the country's current reform agenda includes banking-sector reform and a system to set aside oil revenues for debt relief.⁶⁶ With unprecedented growth in its agriculture, small-scale construction, distribution, and retail trade sectors, Nigeria is experiencing steady economic expansion.⁶⁷ Combined with a sense of urgency on climate issues and an unwillingness to wait for donors (given the realities of climate change's impacts in Nigeria) this might result in early action on climate change.

Nigeria seeks to lead a West African Climate Exchange, for example, though it is unclear how such domestically initiated and market-based initiatives will develop relative to foreign assistance. Nigeria's ambition for regional leadership has been hampered in the past by its lack of governance, frequent internal conflicts, and rampant corruption.

Climate change, human mobility, and local conflicts create pressure that threatens the cohesion of Africa's most populous nation. It is important that the U.S. foreign policy community continue paying attention to this strategically important country. As this bilateral relationship develops, Nigeria could become a test case for addressing complex situations that will increasingly define the way the United States conceptualizes, funds, and runs its foreign policy in the decades to come.

Environmental degradation, human mobility, and climate change are factors in multifaceted threat scenarios that challenge the current institutional setup of U.S. aid, diplomatic, and security policies. Assistant Secretary of State for African Affairs Johnnie Carson stated, “Nigeria is without a doubt for the United States and probably for Africa the most important country on the sub-Saharan portion of the continent.”⁶⁸ Consequently, the United States and Nigeria launched a new Binational Commission in April 2010. The agreement looks to help forge a greater partnership in improving governance and transparency in Nigeria, with a focus on the Niger Delta. It also looks to increase Nigeria’s food security and agricultural development, addressing the need for regional and comprehensive approaches to complex crises scenarios.

Niger

Unlike Nigeria, even the modest hope of economic growth has not permeated neighboring Niger, where 80 percent of the country is covered by the Sahara Desert. Pastoralists have been adapting to and coping with general climate variability for centuries in this environment, yet their mobile pastoral system is no longer functioning as a natural strategy due to the effects of a changing climate. Many have reluctantly settled into villages or migrated to neighboring countries in search of employment.

At the crossroads of West Africa, Central Africa, and the Maghreb, Niger has become a popular international migration route over the past few decades. It sees important flows of transit migrants toward the Maghreb countries and Southern Europe. While “estimates on transit migrants through Niger are scarce and not generally reliable,” according to Anna Di Bartolomeo, Thiba ut Jaulin, and Delphine Perrin, recent research registered the passage of 65,000 migrants en route to Algeria and Libya from Niger in 2003.”⁶⁹

Many migrants, intent on transitioning through northern Morocco to Spain, use the dangerous route across the Ténéré desert. About half of all migrants crossing Niger originate in the underdeveloped central and southern parts of Nigeria, but many others come from Congo, Cameroon, Mali, Burkina Faso, Côte D’Ivoire, Guinea, and Ghana. In the 1990s the Nigerien route “rose in importance as a consequence of the closure of the Chad-Libyan border and the increased risks of the Malian-Algerian itinerary.”

Agadez, the largest city in northern Niger, today serves as a major link town, the departure point for those leaving for Tamanrasset in Algeria and the Sebha oasis in Libya.⁷⁰ The influx became so intense in early 2009 that the United Nations expressed concern about the more than tripling of food prices in northern Niger, while regional health authorities documented “dangerous levels of food insecurity.”⁷¹ Supplies to the local economy of Agadez are dependent upon the trans-Saharan trade network, which is impacted by banditry in the north and the quality of the harvest in the south.

Niger: Fast facts

- Rapidly rising food prices and dangerously high levels of food insecurity are already fueling migration.
- The rapidly growing population is dependent on rainfall crops.
- Al Qaeda in the Islamic Maghreb, Tuareg rebels, and other violent nonstate actors are positioned to exploit weak governance and corruption of the state.



Emi Tchouma, near Agadez in Niger, is facing desertification and a harsh existence.

NATIONAL GEOGRAPHIC VIA AP IMAGES

These pressures are only exacerbated by Niger's demography. The country has the second-highest fertility rate in the world, 49 percent of the population is under 15 years of age, and life expectancy is 52 years.⁷²

Located in arid and semi-arid regions, Niger is expected to become hotter and more prone to drought, erosion, and deforestation with the impacts of climate change. The country has seen rapid population growth over the last 50 years and a dramatic decrease in arable land. Despite this, the majority of Nigeriens are dependent upon rain-fed crops, leaving them extremely vulnerable to variations in climate.

The burgeoning population, coupled with lower agricultural yields, is also pushing people to rely upon the sale of natural resource products such as wood or animal fodder (grasses), resulting in forest and pasture loss. In 2005, 2 million Nigeriens were threatened by food insecurity and the figure rose to 7.1 million in the 2010

crisis. Food insecurity and malnutrition threaten a huge share of the Nigerien population, resulting in more acute malnutrition among children.⁷³

In addition, oil prices and exchange rates with Nigeria continually affect Niger's food security. When Nigeria's oil prices rise and its currency gains value, it becomes cheaper to buy grains across the border in Niger where, even in bumper harvests, farmers generally have to buy food to supplement their insufficient harvests. Thus, similar to the emphasis on livelihood creation in Nigeria, many humanitarian organizations working in Niger are trying to go beyond famine relief toward diversifying incomes for underproducing farmers.

Some farmers have diversified by purchasing livestock or working in irrigated gardens during the dry seasons, but many more migrate to labor jobs in southern states. Since the food-security situation in Niger is direr than in Nigeria, it is crucial to find immediate innovations around food production and access. Food security is improved in the short term through measures ranging from drought-resistant seeds to emergency aid, both aimed toward better insulating the burgeoning population from the next drought. While these short-term measures are crucial, they must be linked to a longer-term strategy that reduces the continual need for emergency agricultural food aid.

Expanding agricultural land use and the related loss of pasture has led to increases in overall migration by Nigerien pastoralists south toward Nigeria in search of food and grazing land. Even though seasonal and permanent migration is mainly caused by drought and poverty, migration to other areas of Niger or to Nigeria, Libya, or West Africa (principally the Ivory Coast) has recently been attributed to the August 2010 floods in southeastern Diffa and in central western Agadez, the latter of which destroyed half the city and rendered many homeless. Ahmadou Bassir, a coordinator for SOS Sahel in Niger, explains:

There is a sense that [climate change] is occurring in certain zones of the country. Notably in Agadez, the habitation isn't as strong as in other parts of the country. ... the people from Agadez lose their homes to rain and migrate to the other areas of Niger or they go to Nigeria or Libya or another part of West Africa. The principal destinations are the Ivory Coast, Nigeria and Libya.⁷⁴

According to meteorological records annual rainfall has decreased and is likely to continue to decrease. Flooding events may have increased due to isolated heavy rainfall, but it is the long-term drought and the increasing prevalence of banditry

(due in part to the recent Tuareg rebellion, which we will address below) that has pushed people to leave Agadez.

The country also faces a complex security situation. While Niger maintains a military presence at both eastern and western borders, recent incidents of kidnapping in Niamey, Niger's capital city, and proximity to the Mali-Niger "hot zone," render western Niger insecure. Southeast Niger, an oil-rich area where China's National Petroleum Corporation signed a contract in 2008 worth \$5 billion to develop oil concessions, has seen conflicts related to disputes over rangeland and wells. The western border has seen perennial conflict between farmers and herders over access to livestock watering points along the Niger River and access to a handful of 1,600-foot wells in the northwest part of the country.

The Tuareg people inhabiting northern Niger have repeatedly rebelled against what they perceive as marginalization by their government. Despite the region's natural resources and widespread development by international corporations with the support of the Nigerien government, many Tuaregs feel they have not received their fair share of the profits. These grievances exacerbate longstanding ethnic tensions and a troubled past.

Fighting between the Tuareg and the national governments of Mali and Niger has a long history with roots in the starvation and marginalization of the Tuareg during the famines of the 1970s and 1980s. Some Tuaregs migrated to Algeria and Libya in the 1980s to join pan-Arab military groups, returning with training and equipment. Additionally, today there are fears that some of the weaponry which disappeared during the 2011 fighting in Libya may turn up in Niger and Mali, ratcheting up the violence.⁷⁵

Such disputes are exacerbated by increased international migration and have the potential to replicate patterns of illicit arms and drug trade and terrorist recruitment like those seen in Afghanistan. In the 1990s, and again in 2007, Tuareg rebel forces attacked towns, government police and military units, and kidnapped foreigners to protest perceived mistreatment. In 2007 the Nigerien government was forced to dispatch 4,000 troops to put down the Tuareg rebellion in northern Agadez over underdevelopment of the region surrounding the Areva nuclear fuel site—the world's second-biggest uranium mine, valued at \$1.5 billion.

The uprising was similar to the pattern of resource-based rebellion by Tuaregs in Mali, and not wholly unlike the so-called resource-rebel situation in the Niger Delta.⁷⁶ In

January 2012 a new Tuareg rebel group, the National Movement for the Liberation of Azawad, attacked the town of Menaka in northeast Mali.⁷⁷ The fear is that this latest rebellion—equipped with weapons taken from Libya, according to many reports—has the potential to spread into the predominantly Tuareg regions of Niger.

The long-term effect of the Libyan conflict is difficult to assess, but there have been reports that Libyan arms, including shoulder-fired, heat-seeking missiles, are trickling into Niger, and that displaced groups (many of them former Qaddafi forces) could further destabilize the region.⁷⁸ For example, the BBC reported that Tawergha, a Libyan town of 30,000, was “cleansed” because of its role in the Libyan conflict and supporters of the old regime driven into Algeria and Niger.⁷⁹

Still, the conflict in northern Niger continues to be about the underdevelopment of the land. Across this vast area many children cannot find a school or a health center, water resources are extremely scarce, and there are very few roads. This difficult environment, the lack of government presence, and the current desperate conditions of the population have allowed Al Qaeda in the Islamic Maghreb to find a foothold by playing on the deep-seated resentments of local inhabitants.⁸⁰ Security experts argue that Al Qaeda in the Islamic Maghreb, based in Algeria and with an alleged formal alliance with Al Qaeda has increased its aims to include Western targets and regularly kidnaps foreigners.⁸¹

Al Qaeda in the Islamic Maghreb also recruits poor tribesmen in Niger by offering them food and money, which some are eager to accept given their desperate circumstances. Algerian intelligence estimates that the regional terrorist group raised \$100 million from ransom and drug trafficking and used the funds to purchase large tracts of land throughout the region, including in Niger, as well as weapons used in terrorist attacks in Algeria.⁸² In 2010, the terrorist group in Niger publicly sought to link with Islamists in northern Nigeria,⁸³ and there are concerns about the potential threats to the broader region, given the potential for Al Qaeda in the Islamic Maghreb to benefit from instability caused by mass displacement and conflict.

Despite the reported overlap between terrorism and migrants, some experts on the ground caution that these conflicts must be seen as distinct from other migration pressures. Hassan Mriyam, the chief of mission at UNICEF, argues that the security issues occur in Niger’s largest northern city of Agadez, one of the Tuareg federations. “There are always problems there with security because of the rebels. ... Al Qaeda in the Islamic Maghreb is in this zone. ... it’s a zone with coal and uranium.”⁸⁴

“There are bandits, in the north,” adds Azara Malam Sulley, a technical counselor to the president of Niger who works on rural development and the environment. Sulley continues:

*[Northern Niger] is an area very rich in resources, which are exploited. This isn't Sudan. Those who are armed are isolated, Islamists, Al Qaeda, with links to Mali. ... climate change, poverty, land degradation, desertification, lack of food, and migration are all interlinked, but migration isn't causing insecurity.*⁸⁵

Still, it's long been shown that heavy reliance on extractive industries (instead of taxation and representation of rural populations) for government revenue reinforces the militarization of resource-based conflicts.⁸⁶ Governments are under pressure to ensure corporate access and accept foreign military assistance to that end. In this context the desertification and flooding in Niger, by virtue of depopulating rural areas and cities such as Agadez, is considered a contributing factor in the creation of a vacuum in which nonstate actors can operate more freely.

In addition, desertification and drought create a situation of vulnerability for populations in the rural areas, pushing them to cities. Migration can also enhance threats in this context. Since the Nigerien state curbs transit movements, these patterns:

*... progressively [have] developed outside any legal framework. For example, all transit migrants, whatever their country of origin and their legal status ... pay so-called taxes, naturally illegal, at almost every army or police check point. Although Algeria and Libya have intensified the fight against irregular migration lately, under the pressure of the European Union, the flows of transit migrants through Niger have not decreased.*⁸⁷

The European Union is increasing its pressure on Niger to tighten border controls. The recent transformations in North Africa and their uncertain outcomes are likely to increase the emphasis on these policies. Over the past two years, “European funding has also been aimed at securing the border between Niger and Libya, a border that has been generally closed.”⁸⁸

General development, adaptation, and climate-change mitigation assistance, however, has been inconsistent. For example, when former Nigerien President Mamadou Tandja introduced constitutional changes that would have allowed him to stay in power indefinitely (he was first elected in 1999), he provoked a political crisis in the uranium-rich country in August of 2010. After the military took

Tandja into custody and assumed control of the government, most donor activities were put on hold.

The U.S. Agency for International Development, or USAID, suspended operations in the country, and the Peace Corps ended 50 years of operation after several kidnappings—and subsequent killings—stoked fears of Al Qaeda in the Islamic Maghreb’s presence in Niger.⁸⁹ With the return of constitutional rule in 2011, international aid has resumed, but American aid is still focused on food security and military training.

Violence and repeated food crises have stymied adaptation and migration strategies in Niger, as priority has been placed on disaster response and personal insecurity. As the presidential election in March 2011 got underway, a voter explained that the concern is “rain and crops and availability of food.”⁹⁰ During the summer five soldiers were accused of planning a coup and trying to assassinate President Issoufou and only three months later a convoy of ousted Libyan officials including one of Moammar Qaddafi’s sons arrived in Agadez.

The continuing political challenges are worsened by climate change, human mobility, and resource pressures which exacerbate Niger’s tenuous food-security situation, raising the probability of increased dependence on foreign aid, increased incidence of small-scale conflict, and overall human insecurity. Without economic diversification, water and land-based conflicts may easily become cross-border conflicts that negatively affect Niger’s neighbors.

Given Niger’s shared border and common cultural connections with Nigeria, cooperation between these two nations will be essential to mitigating these risks. As Nigerian President Goodluck Jonathan acknowledged at the outset of the August 2011 bilateral talks with Niger, food security in Niger is a priority for Nigeria. Jonathan continued to say that “terrorism and transborder crime pose a serious security threat to all our countries, so we will strengthen border patrols and other areas of cooperation with our neighbors, to ensure the safety of our citizens.”⁹¹

It is important to acknowledge that migration and conflict in Niger have their roots in the economic desperation of the population, but poverty is caused in turn by rapid population growth, environmental degradation, and climate events, primarily droughts. Chronic insecurities can break apart households; many young men, seeing little hope in agricultural or pastoral life, leave their families and societies to seek work. Many Tuareg men ended up in Libya because of the inadequacy of their traditional livelihoods.

Cross-border riparian risks—A sub-arc of tension

Spanning 2,500 miles and supplying significant biodiversity, the Niger River is essential to the water needs and livelihoods of nine countries: Benin, Burkina Faso, Cameroon, Chad, Côte D'Ivoire, Guinea, Mali, Niger, and Nigeria. Yet if current climate and water consumption trends continue, water withdrawal from the Niger basin will increase six-fold by 2025. There are plans for up to 20 new dams to be built along the river, which would greatly diminish flow, while thousands of ongoing oil and wastewater spills from oil production will continue to degrade water quality.

The migratory repercussions of these trends have not yet figured into projections, but “zones of tension” have been identified where climate change has the potential to increase the risk of conflict in West Africa. The results of the population-resource pressures could result in migration affecting the region, including the area between western Nigeria and Niger.⁹²

The largest potential cause of conflict is water scarcity caused by rapidly increasing demand and dwindling resources. Nigeria has historically opposed upriver dam projects on the Niger River (in Niger or Mali) that would reduce their annual inflow volume by more than 10 percent. With recent drops in the Niger River's average annual flows of 20 percent to 50 percent, this situation could become a national political issue—even if these decreases are in fact being caused by changes in the climate (and not up-river projects), the decreases in flow have the potential to add to international tension in the region.⁹³

Also, sudden migration could be triggered by flooding of poorly maintained dams. In August and September 2010, for example, 130,000 people were displaced in northwestern Nigeria when a spillway from the Goronyo dam burst after heavy rains, creating food and shelter shortages and the conditions for disease outbreaks.⁹⁴

As conflict analysts have long pointed out, multilateral water sharing—in this case among Niger, Cameroon, and Chad—could either lead to greater conflict among wetland communities or greater cooperation through joint-management schemes such as the Niger Basin Authority. The current 2008 Niger Basin Water Charter, for example, is a 30-year investment and five-year plan for Integrated Water Resources Management. Despite financial support, the authority has been mired in legal and staffing issues and other capacity related

problems, prompting Nigerian President Jonathan Goodluck to demand these issues be resolved and a coherent and comprehensive strategy be implemented.⁹⁵

As political pressure mounts for forward-looking management of the Niger River, the rapid decline of Lake Chad, where Nigeria's northeastern and Niger's southeastern corners meet, is considered a grimmer situation. Lake Chad and its floodplains and wetlands support an estimated 20 million people, projected to rise to 35 million by 2020.⁹⁶ Its waters support communities along the river with fishing, agriculture, grazing, nontimber products, and fuel wood. But the wetlands have been intensively cultivated and used by nomadic pastoral groups for grazing during the dry season, leaving the ecosystem exhausted.

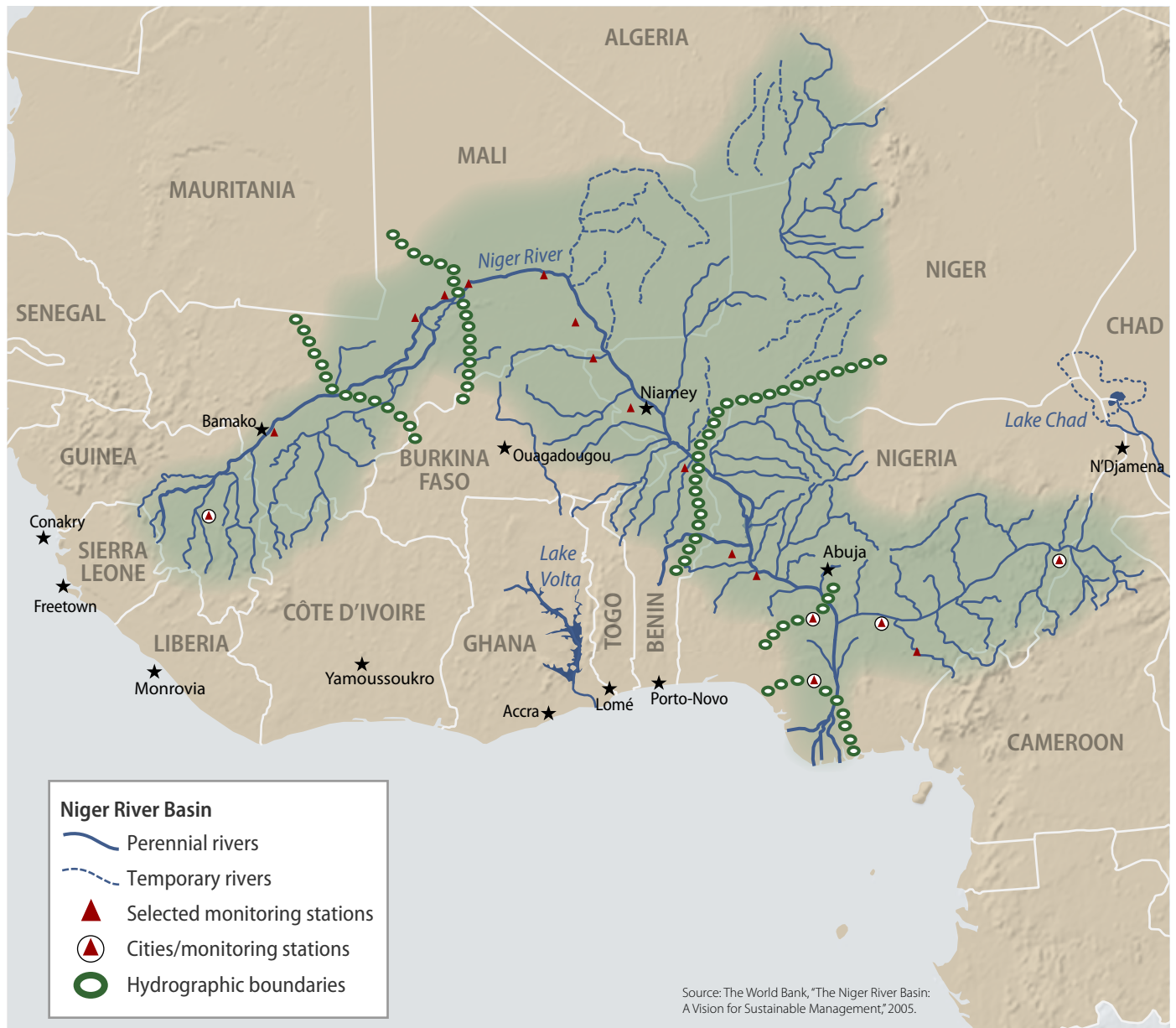
While Lake Chad has been receding for decades and has survived previous dry periods, climate change is blamed for speeding the process. Climate change shrinks the water surface on two fronts—reducing rainfall and speeding water evaporation through higher temperatures. The great fear (and likely future outcome) is that Lake Chad will disappear completely. Pastoralists who migrate south from the lake, along with the farmers and fishermen moving from the lake to Yaoundé in Cameroon, have seen their average household income fall by more than half in recent years. These families view migration as their only choice under existing conditions, and have been referred to as climate migrants.⁹⁷

Further, dam building in the region and transboundary changes in water allocation could create tensions and conflicts, for example in the lower Komadugu, a tributary to the Yobe River system that runs through Nigeria and Niger into Lake Chad. The Hadejia-Nguru wetland—Nigeria's most important, supporting half the people living in the Basin area—has also decreased by two-thirds due to dams and drought.

The Lake Chad Basin Commission (with Cameroon, Chad, Niger, Nigeria, and the Central African Republic as members under United Nations Development Programme supervision) has asked for international support to dam the Oubangui River in the Central African Republic to channel water, but feasibility studies have not been completed, the charter regulation of water use (along with Algeria, Sudan, and Libya) has not been enforced, and neither effort has been linked to climate adaptation.⁹⁸

For these reasons, governance plays a major role in addressing the nexus of climate change, migration, and conflict in Niger. Much of the conflict could be avoided if governance systems were more reliable and less corrupt. While the Tuareg case takes the shape of a natural-resources conflict, the roots of the struggle go back to the fact that both the governments in Mali and Niger have systematically marginalized the Tuareg people by ignoring their livelihood needs, denying them territory, and failing to aid them during serious natural disasters.

Northwest Africa's complex riverine matrix



Algeria

Algeria is generally not identified among the group of countries most vulnerable to climate change. In fact, in the World Bank's 2009 rankings of the dozen countries most at risk from climate threats in five categories—drought, flood, storm, coastal inundation, and agriculture—Algeria appeared near the end of the list.⁹⁹ Yet even though the country may be facing less dire predictions than some other Middle Eastern and African nations, it still has significant points of climate change vulnerability, some of which will overlap with existing human mobility and security concerns.

A growing body of research suggests that those migrants who reach Algeria from the sub-Saharan states, whatever the precise mix of factors that drive them, will face an increasingly uncertain climate. The industrialized democracies' Organisation for Economic Cooperation and Development warns that the Maghreb region as a whole will confront increasing temperatures, decreasing rainfall, and a rising sea level as climate change progresses. By 2020 these countries may see “a temperature increase of 1° Celsius (1.8 ° Fahrenheit) and a reduction in rainfall likely to reach 10 percent.”¹⁰⁰

Extreme weather events have already caused mass displacement in Algeria. In 2001 flash floods and mudslides killed hundreds and left thousands homeless. The United Nations reports that more than 45,000 people were affected.¹⁰¹ These natural disasters—and the resulting humanitarian disruptions—are likely to occur more frequently in the years to come.

Another concern in Algeria and other Maghreb countries will be the lack of water. Despite desalinization projects, Algeria ranks second among African countries in terms of water scarcity.¹⁰² As the World Resources Institute notes, such shortages could lead to problems with “both food production and economic development unless the region is wealthy enough to apply new technologies for water conservation and re-use.”¹⁰³

Algeria: Fast facts

- Algeria has confronted nearly 1,000 acts of terrorism since 2001 and now hosts a regional counterterrorism command center.
- Water scarcity, rising temperatures, erosion, and other effects of climate change will place increased pressure on the vulnerable Algerian government.
- Major migration routes to Morocco run through Algerian territory, creating vulnerability to climate-driven transit migration from sub-Saharan Africa.

If these advances are not achieved, domestic food insecurity has the potential to spark domestic security concerns. In January 2011 Algeria experienced food riots that left two people dead and 300 injured. While these events were also fed by dissatisfaction with the country's overall economic health, *Voice of America* reported that "the unrest began ... after the sudden price hike of food staples such as flour, sugar, and oil."¹⁰⁴ Understanding how climate-driven tensions, whether sparked by rising food prices or an increasingly overburdened government, will intersect with the pressure of a growing migrant community in Algeria will be a key policy challenge in the coming decades.

Desertification also has the potential to substantially increase the pressure on Algeria. About 87 percent of Algeria's landmass falls within the Sahara Desert, where the population is sparse. U.N. data shows that "over 90 percent of Algerians live along the Mediterranean coast on only 12 percent of the country's land."¹⁰⁵ Between 1990 and 2005 the country demonstrated progress increasing the amount of land covered by forest, growing from 0.8 percent to 1 percent cover.

But desertification has already taken a toll on Algeria, and some of the damage may be irreversible. Between 1996 and 2006 some 130,000 square kilometers of land were lost to the desert.¹⁰⁶ While the human causes of desertification—such as unsustainable forestry practices—must be addressed, climate change also plays a role.¹⁰⁷

According to the United Nations, the Algerian government is moving forward with efforts to slow desertification through reforestation projects, but "irrigation-induced soil salinity, overgrazing, and forest fires ... continue to degrade vulnerable lands, especially in the semi-arid plains just north of the Sahara Desert."¹⁰⁸ But it should be noted that the unpredictability of high-altitude winds, which affect the rains and are incredibly difficult to model, means that future climate patterns in the region are very difficult to determine.¹⁰⁹

Some evidence supports the idea that eastern parts of the Sahara Desert, largely in Egypt and Sudan, are gradually increasing vegetation cover—this was the key finding of a 2009 study that identified "extensive re-greening" in those parts of the Sahara and Sahel. It is unclear whether this trend will extend to Algeria.¹¹⁰

Whether and when desertification can be ameliorated in the Sahel belt is a critical question for Algeria and one that ties together all elements of the climate, migration, and security nexus. According to Saib Musette of the Algerian Research Center for Applied Economics and Development, the advancement of the Sahara

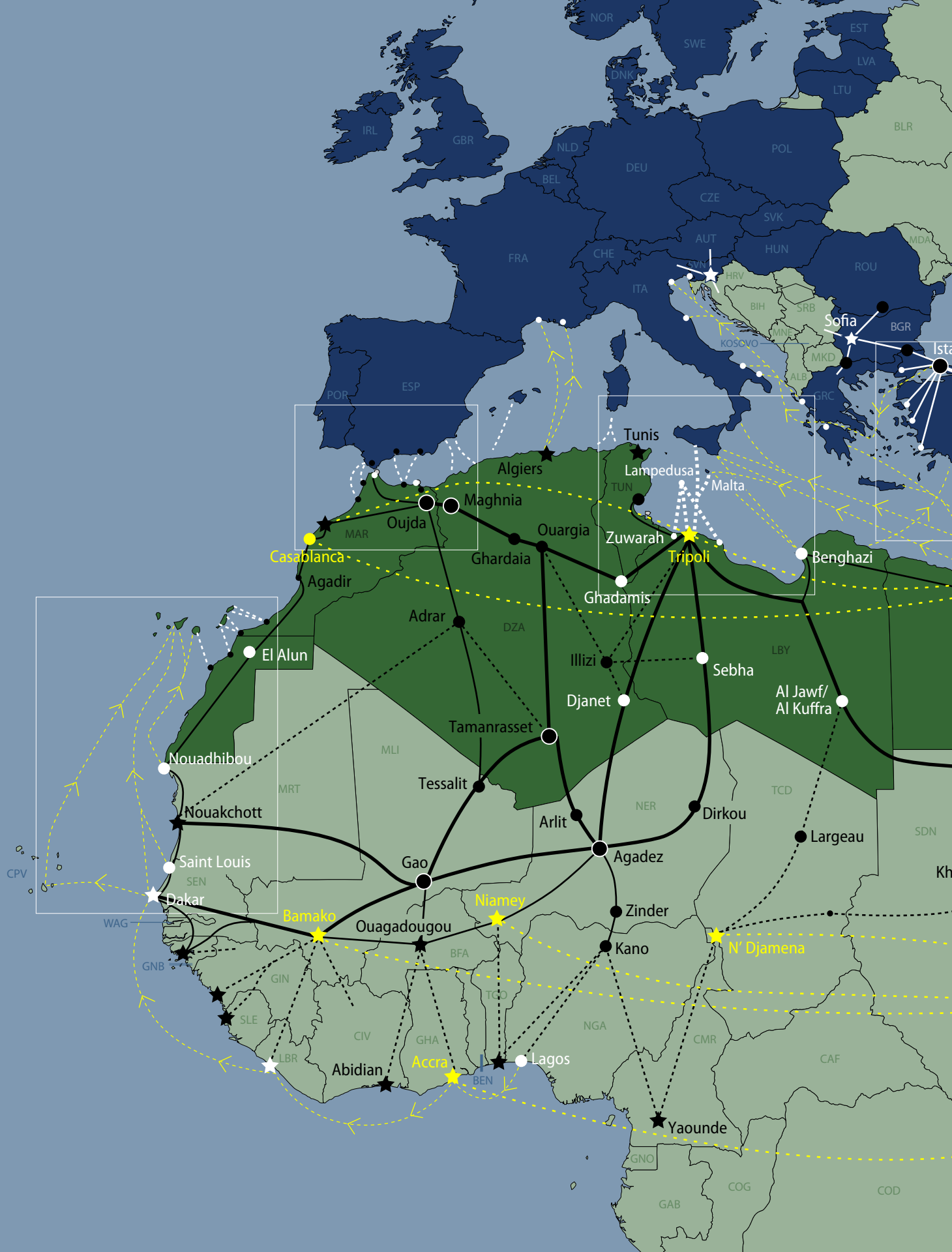
Desert both to the north and the south is the central problem of the climate-migration nexus in that region. Musette argues that the southern spread of the Sahara, combined with drought, is driving seasonal migration from sub-Saharan Africa toward southern Algeria. Some of these migrants intend to travel onward to the European Union but get stuck in Algeria with no permanent employment options.¹¹¹

Algeria has a long history as a sending country. Indeed, Jim House of the University of Leeds notes that “the migration of colonized Arab-Berbers from Algeria to mainland France was the earliest and the most extensive of all colonial migrations to Western Europe before the 1960s.”¹¹² This economically motivated migration was initially temporary, but as entire families began to migrate in the mid-20th century, it became a more permanent phenomenon. In the years following Algeria’s successful struggle for independence, however, France gradually sought to limit movement between the two countries, and by the 1980s immigration had surfaced as a significant issue in French politics.¹¹³

Today Algeria faces an increasingly complex relationship with migration. The movement of Algerians into Europe continues: According to the EU-financed Consortium for Applied Research on International Migration, in 2008 (the most recent year for which figures are available) the European Union recorded receiving some 811,826 migrants from Algeria, while Algeria reported that 1,118,674 emigrants had left the country for the European Union.¹¹⁴ In addition to direct migration between Algeria and Europe, the country also serves as a transit corridor for sub-Saharan migrants moving into Libya and Morocco, and an unintentional destination for migrants who are unable to cross into neighboring countries and, ultimately, Europe. These people may spend weeks, months, or years in secondary destination countries such as Algeria.

Transit migration highlights the vulnerability of these stateless migrants to changing environmental conditions in Algeria, but also underscores Algeria’s vulnerability to climate variation in migration-sending countries. The effects of climate change may be more pronounced in these countries, driving large numbers of people to leave their homes. Existing labor-migration routes link Algeria to Niger and Nigeria in the southern segments of the arc of tension, but also to Mali and Senegal by land, and countries such as Benin, Liberia, Cameroon, and others by air.¹¹⁵

The World Bank rankings indicate that Niger faces significant climate threats from drought and changes in the agricultural sector. Senegal, too, is highly vulnerable to coastal sea-level rise, and Benin is among the countries most at risk from floods.¹¹⁶



Irregular migration corridors into Europe

ROUTES

- Minor connecting land routes
- Connecting land routes
- Major connecting land routes
- Maritime routes
- Major maritime routes
- Exploited ferry routes
- Major air routes

COUNTRIES

CHI Main Asian countries of origin using air migration routes

CHI Country code

MTM EPS
European Partner States

MTM APS
Arab Partner States

ZONES

Main areas of departure and entry to the EU

Capitals

Main migration hubs

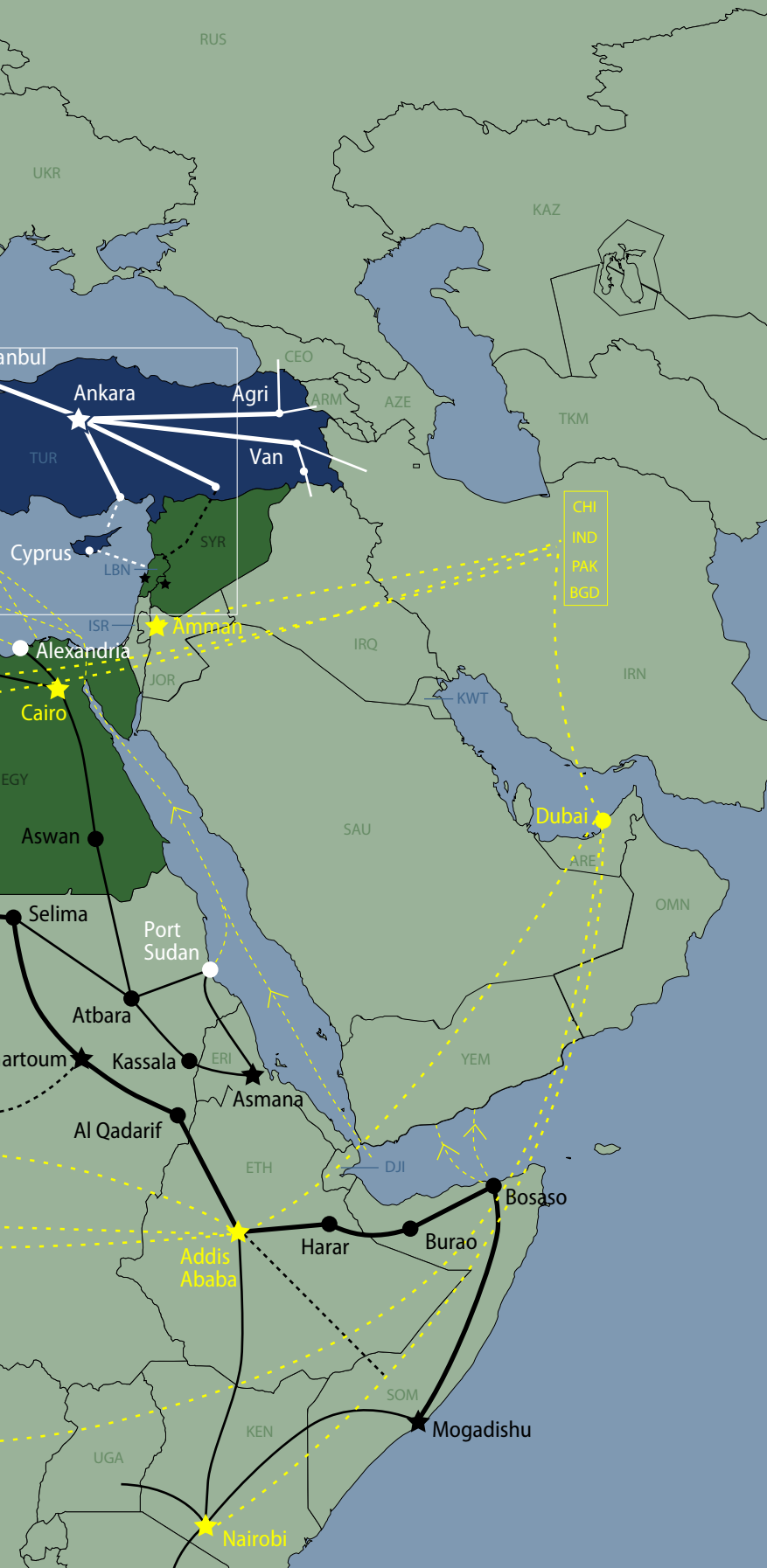
Migration hubs

Migration route cities

Main transit airports

NOTE: All areas marked are approximate.

Source: International Centre for Migration Policy Development, "1-Map Irregular Migration Map" (2006).



Many climate migrants from these sending countries pass through Algeria, and some will remain there. Upon arrival in Algeria these migrants will join an already significant population of internally displaced persons.

The decade of violence between Algerian government forces and Islamic opposition groups was largely brought to a close by the early 2000s, but significant internal displacement remains. The estimates of displacement following that conflict range from 1 million to 1.5 million. The Internal Displacement Monitoring Centre in Switzerland, an international body that monitors human mobility, notes that the government has “largely not disputed those figures.”¹¹⁷ While the government of Algeria claims that these “internally displaced persons” are no longer displaced, the Internal Displacement Monitoring Centre argues that no proof of resettlement has been provided, and “it is likely that most of these migrants have remained in the cities they fled to ... as access to livelihoods in rural areas has remained very limited.”¹¹⁸

The trend of advancing desertification pushing sub-Saharan migrants north into Algeria’s already overpopulated urban areas also highlights the risks associated with ungoverned spaces in the context of Algeria’s tenuous domestic-security situation. Although the violence of the 1990s has been significantly reduced, Algeria is now one of the hotspots for terrorism on the African continent. Al Qaeda in the Islamic Maghreb emerged from the remains of the Salafist Group for Preaching and Combat, one of the parties that fought the Algerian government in the 1990s. The regional terrorist group has engaged in kidnappings, arms and drug trafficking, and carried out a number of high-profile bombings in Algeria and neighboring countries.

According to research from Yonah Alexander of the Potomac Institute for Policy Studies, the Maghreb and Sahel countries have suffered 1,103 incidents of terrorism since September 11, 2001. Of this total Algeria has sustained 938, including 168 in 2010 alone.¹¹⁹ Not all of these attacks can be attributed to Al Qaeda in the Islamic Maghreb, but the group poses a real risk to the Algerian state’s ability to maintain control over its borders. Alexander notes that Al Qaeda in the Islamic Maghreb conducts training in “the ungoverned regions of the Sahara and Sahel.”¹²⁰

The terrorist group also takes advantage of lax border control to move kidnapping victims from Algeria deeper into the desert in states like Mali. In the past few years the group has also shifted personnel, leaving northern posts for the less-regulated south and southwest Algeria.¹²¹

In response to the threat of terrorist operations in these ungoverned areas, Algeria, Mauritania, Mali, and Niger are cooperating on a joint military command center in the southern Algeria city of Tamanrasset. The joint center is intended to coordinate operations and information sharing to aid in efforts to confront Al Qaeda in the Islamic Maghreb and deter trafficking across the members' borders.¹²²

The potential security implications of open spaces are also of concern to the United States. The U.S. State Department is currently leading the Trans-Saharan Counterterrorism Partnership, which encompasses all of the states along the arc of tension, along with five other countries.

This partnership, in coordination with the Pentagon and USAID, is aiming to facilitate greater cooperation among states in the region, strengthen their counterterrorism capabilities, and discredit terrorist ideologies, among other goals.¹²³ As of 2008, however, the U.S. Government Accountability Office, the nonpartisan investigative arm of Congress, expressed concern about the lack of interagency coordination and counterterrorism metrics for the Trans-Saharan Counterterrorism Partnership and it is not clear whether these issues have been resolved.¹²⁴

Al Qaeda in the Islamic Maghreb, of course, is not the only group that takes advantage of the opportunity to cross poorly supervised borders in southern Algeria. Tamanrasset is also a major transit hub for migrants moving into the state from sub-Saharan Africa. Last year 12 migrants from Cameroon, Mali, Cote d'Ivoire, Senegal, Gambia, and Guinea died in the desert outside Tamanrasset after their truck broke down and the group ran out of food and water.¹²⁵

Those migrants who are successful in reaching Tamanrasset, and other cities along the major migration route to Morocco, encounter a state with little capacity to assist them. As Professor Jean-Pierre Cassarino of the Maghreb Return Migration Project at the European University Institute in Italy notes, the Algerian state's migration policy is "quite missing." Although there are initiatives in place for the Algerian diaspora, migrants moving into the country from outside of the country are left at the mercy of an ad hoc system.¹²⁶

Morocco

The arc of tension ends in Morocco, one of Africa's most stable states. The movement of migrants, however, does not stop there—many use Morocco as a departure point for the final journey into Europe, either by sea toward the continent or by land over the fences separating Morocco from Ceuta and Melilla, two Spanish enclaves on Morocco's northern coast. Of those who are unable to make the crossing successfully, some will join Morocco's sizable population of illegal immigrants, while others may be apprehended and deported. As in the other segments of the arc, this human drama is occurring within an increasingly intersecting network of environmental and security factors.

Professor Mehdi Lahlou of the Institut National de Statistique et d'Economie Appliquée in Morocco explains that his interviews with Moroccan and sub-Saharan migrants rarely turn up direct climate-migration links at first glance. But Lahlou notes that “after a discussion about their situation, about their origin, where they were living, and the trends of their economic sector,” he has reason to believe that climate change, in the form of decreased rain and reduced returns on crop land, is the most important factor in migration from poor, rural areas in Morocco and other origin countries like Niger, Mali, and Burkina Faso.¹²⁷

Anna di Bartolomeo of the Consortium for Applied Research on International Migration confirms that “looking at historical trends, we can say for sure that climatic conditions (and especially droughts) have played a role in urbanization.” She singles out drought as a contributory factor in rural-to-urban shifts Morocco and Algeria.¹²⁸ A 2009 report on climate change in North Africa, commissioned for the office of the U.S. director of national intelligence, confirms this trend, reporting that “climatic data from Morocco, Algeria, and Tunisia indicate that the frequency of droughts increased from approximately one per decade to 5-to-6 per decade during the course of the 20th century.”¹²⁹

Morocco's coastal areas are at particular risk from climate change. Coastal erosion is already claiming three feet of coastline per year in some northern areas. A rising sea

Morocco: Fast facts

- Morocco's sizable agricultural sector will be challenged by decreasing freshwater resources, leading to internal migration and social stresses.
- International migrants driven by a variety of causes, including changes in climate, continue to gravitate to Morocco, where they put particular stress on two Spanish enclaves on Morocco's northern coast.
- Internal security challenges, the unresolved status of Western Sahara, and the potential for future actions by Al Qaeda in the Islamic Maghreb create an environment vulnerable to the disruptive effects of climate change.
- The increasing numbers of illegal immigrants have no rights in Morocco, and it is even illegal for Moroccan citizens to provide help.

level may only exacerbate this development, leading to greater salinity of low-lying freshwater sources. Farmers near the mouth of Morocco's Moulouya River (which empties into the Mediterranean Sea in the north) have already seen increased salinity in the aquifers used to support their crops. As a result, they have moved away from vegetable crops toward cereals that can handle the saltier water.¹³⁰

Morocco's own National Meteorological Directorate predicts a decrease in rainfall in the country of 20 percent to 30 percent by the end of the 21st century, a development that is likely to place further stress on freshwater supplies.¹³¹ This is particularly critical because agriculture represents nearly 15 percent of Morocco's gross domestic product and employs 40 percent of its population, according to the World Bank's most recent numbers.¹³² Although some models suggest that climate change will aid some agricultural production in Morocco—notably maize yields, which may respond positively to increased concentrations of carbon dioxide—it is also likely to increase water scarcity in this important industry. Morocco and Algeria may lose 10 percent to 15 percent of their water resources over the next decade.¹³³

The precise effects of climate change in Morocco will vary by region. But it is clear that climate change has the potential to place increasing stress on the Moroccan government and economy as the country simultaneously confronts the stresses induced by migration—partially driven by climate factors.

Migration is very much on the mind of Moroccans. Polling conducted by Gallup in 2010, before the current round of uprisings in North Africa, found that 37 percent of people surveyed in Morocco would undertake permanent migration or temporary migration for work if they had the opportunity to do so.¹³⁴ And according to Professor Gayle Allard of the Instituto de Empresa in Madrid, recent efforts by the Spanish government to create incentives for Moroccan immigrants to return to their country of origin have been largely unsuccessful.¹³⁵

In addition to the transit of Moroccans to Europe, the country is a key destination for sub-Saharan migrants moving north. Many of these migrants reach Morocco from northern Algeria. The land border between those two countries has been closed since 1994, a state of affairs that is unlikely to be resolved without some movement on broader bilateral security issues explained below. Yet the illegal transit of goods and migrants continues near Oujda, which serves as the entry point for almost three-quarters of the illegal migrants crossing into Morocco. Once across the border, some of these migrants settle into camps where, “according to

local sources, migrants live in constant fear of the possibility of police raids at any moment and [of] the violent mafia-like organizations that manage the camp.”¹³⁶

In the past, Moroccan authorities have chosen to expel migrants by abandoning them in the middle of the night along the closed border with Algeria, an area characterized by the charity organization Doctors Without Borders as a “no-man’s land.” After 600 to 700 migrants, including pregnant women and children, were left in this area in September 2010, “at risk of being attacked and robbed by bandits and smugglers who operate in the area,” the organization noted that the migrants “faced the choice of returning to Oujda on foot or trying to cross to the Algerian side of the border.”¹³⁷

Doctors Without Borders observed that, of the migrants displaced in the September 2010 raids, those who made their way back to Oujda were “completely destitute.” For environmentally induced migrants, this vulnerability on the receiving end exasperates frequently degraded living standards experienced in their home countries. While Doctors Without Borders did not provide information on the factors driving that particular group of migrants, the anecdotal evidence suggests that environmental factors are beginning to play a role in the decision to migrate into or through Morocco.

The Spanish enclaves of Ceuta and Melilla are key destinations for illegal migrants seeking to enter Europe. Both enclaves are now protected by sophisticated border fences, including motion detectors and cameras to detect illegal crossings.¹³⁸ This has not, however, entirely prevented attempts to enter Spanish territory through those illegal crossings. In 2005 efforts by hundreds of migrants to break through the fences into Ceuta and Melilla led both Spain and Morocco to increase security forces around the enclaves. If climate change contributes to increasing migration north from sub-Saharan Africa, attempts to cross over into Spanish territory are likely to become even more frequent.

Changes in climate within Morocco may also facilitate the growth of security challenges related to migration. As noted by a conference paper on climate change in North Africa prepared for the U.S. director of national intelligence, “differential climatic impacts in particular areas may drive rural populations to migrate into new rural areas with more abundant resources and less climatic stress.” This, however, may create rural-rural tensions over resources, according to the report.



A coastguard boat tows a small boat carrying 85 would-be immigrants into the port of Los Cristianos on the Canary island of Tenerife, Spain, in 2006. 292 immigrants arrived in three small boats in Tenerife as Spain renewed its appeal for the European Union to do more to halt a flood of illegal migration from Africa, saying the problem is one of the bloc's main challenges of the new century and Spain cannot handle it alone. More than 23,000 migrants have made dangerous ocean crossings from northwest Africa to Spain's Canary Islands so far, leading to the drowning of many and a near collapse of holding facilities on the islands.

THE ASSOCIATED PRESS/ARTURO RODRIGUEZ

Climate-driven internal migration also has the potential to aggravate existing social divisions. The director of national intelligence report suggests that “the combination of water scarcity and stress on marginal agriculture could drive more Berber speakers into Arab-speaking coastal communities, creating a potential for ethnic conflict.”¹³⁹

Climate-driven migration also has the potential to more broadly influence Morocco's national security agenda. As noted by the director of national intelligence paper, migration from North Africa to Europe alleviates pressure on resources and the labor market in the Maghreb, yet “climate change is expected to significantly exacerbate both of these challenges.”¹⁴⁰ This will be of particular concern for Morocco due to the position of Ceuta and Melilla on its northern coastline, its proximity to continental Europe, and its ongoing struggles with domestic extremists.

The continued high-profile presence of those enclaves in Morocco has attracted not only migrants, but also the attention of extremist organizations such as Al

Qaeda. Ayman al-Zawahiri, who has now ascended to the top spot in Al Qaeda's central organization after the killing of Osama bin Laden, has repeatedly called for his followers to liberate the Spanish enclaves.¹⁴¹ In Ceuta almost half of the Muslim residents are clustered in the Principe neighborhood, where in 2006 Spanish police charged seven men with planning terrorist attacks. A 2007 *Time* magazine report noted that Principe is "sorely lacking in everything from police and sanitation services to job opportunities. But there's no shortage of weapons on the streets." Javier Jordan of the University of Grenada characterized the enclave as "in a pre-jihadist stage."¹⁴²

USAID's Office of Conflict Management and Mitigation has partnered with the Massachusetts Institute of Technology's Center for International Studies to look into the drivers of, and responses to, urban violence.¹⁴³ This fieldwork is currently underway, and the results should inform policy toward cities like Lagos, Tangier, or Agadez, where the stresses of incoming migration could create similarly volatile urban dynamics.

The extremist threat in Morocco differs from the Algerian experience in both frequency and content. Between 2001 and 2010 Morocco endured only seven terrorist attacks—two in 2003 and five in 2007—while Algeria faced more than a thousand.¹⁴⁴ Unlike Algeria, Morocco's threat is largely internal—local, self-radicalizing terrorist cells are a significant concern—rather than transnational (although domestic groups may have global ambitions).¹⁴⁵ The Moroccan Islamic Combatant Group, active since 1993, and Salafia Jihadia, which evolved from the Moroccan Islamic Combatant Group, are domestic groups that aim to remake Morocco as a traditional Islamic state.¹⁴⁶ Salafia Jihadia was responsible for a series of bombings in Casablanca in May 2003 that killed 45 people, one of the most gruesome recent attacks in Morocco. Suicide bombers also struck Casablanca in 2007, although no single group has been identified as the sponsor of that incident.

There have been no confirmed successful attacks by Al Qaeda in the Islamic Maghreb within Morocco to date, although this should not be taken as evidence that the group is not operating within the state.¹⁴⁷ An April 2011 café bombing in Marrakesh bore the hallmarks of an Al Qaeda operation, although the origins have not been confirmed, and at least one European source noted in the aftermath of that attack that Al Qaeda in the Islamic Maghreb had entered into cooperation with the Moroccan Islamic Combatant Group.¹⁴⁸

Moreover, suspected Al Qaeda members have been identified in Morocco. In January of 2011 Moroccan authorities arrested 27 people that it alleged were mem-

bers of a terrorist cell, including, it claimed, “a member of Al Qaeda in the Islamic Maghreb who was tasked by this organization to set up a rear base in Morocco where it would plan terrorist acts.” The government alleged that the group had planned to take advantage of training camps in Mali and Algeria in order to prepare potential attackers for a domestic operation.¹⁴⁹ The presence of Moroccan extremists in Pakistan and Iraq has fed fears that foreign-trained extremists will return to the country with the experience needed to carry out more damaging attacks.¹⁵⁰

As previously noted, regional efforts are underway to confront Al Qaeda’s operations in North Africa. Yet, while Morocco is a participant in the U.S.-led Trans-Sahara Counterterrorism Partnership, it is not involved in the regional counterterrorism command center project in Tamanrasset, in which Algeria has a leadership role and thus more sway over the membership of the group. This disconnect, in the face of otherwise significant counterterrorism efforts and cooperation with the United States, stems in part from the poor state of relations between Morocco and Algeria, a diplomatic breakdown rooted in disagreement over the Western Sahara territory.¹⁵¹

Morocco has long claimed sovereignty over Western Sahara, a former possession of colonial Spain. However, the issue is not merely an internal concern. Morocco’s claim has been violently opposed by the indigenous Polisario Front, a group that receives significant support from neighboring Algeria. And, while frosty relations between Morocco and Algeria predate the Western Sahara conflict, Algeria’s recognition of a Polisario-led Saharan Arab Democratic Republic and tolerance for its refugee camps within its territory have long been a source of tension between Algeria and Morocco.

The failure to find a lasting solution regarding the Western Sahara has undermined regional initiatives in the Maghreb, such as the Arab Maghreb Union, and is behind Morocco’s refusal to join the African Union. Jacob Mundy of the Institute of Arab and Islamic Studies believes the dispute has “retarded regional security cooperation against transnational terrorist groups.”¹⁵² Whether these poor relations also have an impact on regional efforts to confront the effects of climate change remains to be seen.

Although Morocco is not among the countries most vulnerable to climate change, its unique mixture of climate vulnerabilities, human mobility, and security concerns suggests that much closer attention should be given to this nexus as the effects of climate change emerge. If climate does drive increased migrant flows from sub-Saharan Africa while pressuring Morocco’s domestic environment and economy, the country’s position at the edge of Africa and Europe will be of critical

importance. Moroccan authorities will need to manage the economic and social consequences of the climate-mobility nexus while also addressing significant domestic security concerns, notably the potential for climate change, migration, and security to intersect in the Spanish enclaves.

These efforts will be handicapped by feeble regional cooperation, pressure from the European Union to control the movement of migrants heading north, and the unpredictable effects of climate change itself. The more important question is, “What can be done to boost regional cooperation by the United States and the international community?” We turn to this question in the next section.

Climate migration gender gap

The challenges we describe in this report affect women and men differently, which means the solutions for these problems must incorporate an understanding of gender in responses to complex crises. First and foremost, women are disproportionately represented in the rural agricultural sector in Northwest Africa, which means many women in the region will bear the brunt of the problems associated with climate change, migration, and security.

Large segments of the people in these countries are dependent on agriculture. Approximately 90 percent of workers in Niger are engaged in agriculture and this dependence is complicated by the decrease in arable land in those nations. Women constitute the majority of small farmers in many regions of Sahelian and sub-Saharan Africa, thus bearing the brunt of the environmental degradation.¹⁵³

What’s more, rapid population growth in the region compounds the problem. Niger boasts the world’s second-highest fertility rate, and rapid population growth in Nigeria means its population is projected to double by 2050.¹⁵⁴ Women are the primary caregivers for children in these nations while also doing much of the agricultural work. Access to family planning, reproductive health services, and education would allow women the ability to make choices about reproduction.

Women are at more risk from the nexus of climate change, migration, and security for other reasons. A number of studies indicate that

women are more vulnerable to natural disasters and that female life expectancy is disproportionately affected by such disasters.¹⁵⁵ Women and girls are put in harm’s way when they have to spend more time and travel longer distances to collect water, wood, and other resources and services, especially in conflict areas. And girls are kept out of school and women can’t attain fair-compensation employment in the formal sector because of these duties.

This intersection of climate change and gender is being more widely discussed at the international level, as evidenced by the integration of gender-sensitive language in the text during the 17th Conference of the Parties to the U.N. Framework Convention on Climate Change in South Africa.¹⁵⁶ Yet the consequences of these challenges facing women in Northwest Africa and around the world means the importance of a gender-based approach to solutions require more attention in international conversations about climate change, migration, and security.

Worldwide, women constitute nearly three-quarters of the world’s poor and in many rural areas in the developing world are responsible for providing their families with food. Despite women’s widespread reliance on working the land and natural resources, they often do not have land rights, a fact which limits their access to credit and investments in sustainable practices.¹⁵⁷

[Continued on next page](#)

Environmental migration and the challenges associated with climate change have the potential to provide opportunities to empower women because the absence of men (who are usually the migrants) allows women to assume nontraditional roles back home. These trends could shift gender norms in ways that empower women who remain at home while men work abroad.¹⁵⁸ Additionally, addressing climate change through sustainable agricultural practices that enhance resilience and by the burgeoning of clean energy technologies can diminish gender disparities in income and employment while improving food security and cultivating economic growth.¹⁵⁹ Policies that address climate change, migration, and security can remove traditional barriers that endanger women and limit their full participation in the economy.

When it comes to women migrating, whether forced to do so because of violence or due to environmental factors, women are often exposed to gender-based violence in refugee camps—a fact that must be considered in postcrisis responses (such as the previously mentioned emergency shelters in the Nigerien city of Agadez discussed

on page 17 of this report). The lack of health, social, and environmental services in small, poor urban centers and informal settlements is a heavy burden on women because of their asymmetric domestic care responsibilities. Other gender dimensions to migration include the question of opportunities for employment after relocation, safeguards for domestic labor, and general access to scarce labor markets.

To achieve a greater degree of resilience, it is important to guarantee women's equal access to education, employment, family planning, and participation in family decision making. To this end, it is important that gender language continues to be integrated in the U.N. Framework Convention on Climate Change and other international bodies. Gender should also be a component of adaptation and mitigation plans, migration policies, and poverty policies in urban areas. Finally, women should be incorporated into the planning of infrastructure developments on which they rely as the primary caregiver in most families in this region.

Sustainable security

Addressing climate change, migration, and political and social insecurity in the arc of tension

Many of today's security concerns are transnational in nature, requiring a renewed emphasis on global governance. Pressing challenges, particularly those resulting from transformational forces like climate change and migration, require a collaborative international approach. Conflicts and complex crisis scenarios resulting from such shifts demand nontraditional security approaches, eschewing traditional conceptions of "hard security" to focus on economic development, the rule of law, and human rights. A "sustainable security" approach—facilitating international cooperation to integrate defense, diplomacy, and development—will be better able to address complex problems such as the nexus of climate, migration, and security that is the focus of this paper.

Concurrently, the sources of foreign assistance and donor-recipient relations are undergoing rapid change due in part to the rise of new global economic actors such as Brazil, Russia, India, and China—the so-called BRIC countries—and the rise of private-sector investment and philanthropy over the last decade. Foreign aid is regularly discussed during BRIC meetings; China has grown its foreign assistance at a 30 percent rate annually, and the four BRIC countries collectively doubled humanitarian assistance between 2005 and 2008.

In addition, over the past decade official development assistance has accounted for a decreasing proportional share of donor nations' economic engagement with the developing world as private financial flows have come to predominate. The Hudson Institute's most recent annual study noted that, in 2009, official U.S. development assistance accounted for only 13 percent of total U.S. net economic engagement with developing countries, while private philanthropy accounted for 17 percent.¹⁶⁰

The United States is facing the dual challenge of reforming its own foreign-assistance programs and the administrative structure of the relevant government agencies

while also refining the core strengths of these programs and agencies. Fraught with bureaucratic peril in the best of times, this task is made more difficult in an era of fiscal constraint and a competitive global environment for foreign-assistance partnerships. This process will require the U.S. foreign-assistance framework to streamline efforts in the face of declining taxpayer resources. The same dynamic is playing out in many of the other major foreign-assistance donor countries in the developed world.

The United States needs to lead efforts to coordinate development policies and establish a more coherent international approach to ensure that austerity measures in developed nations do not cripple foreign-assistance programs at a time when the nexus of climate change, migration, and security poses serious threats to global prosperity and national security. These changes in U.S. foreign assistance are driven by a growing recognition that effective reform is needed to effectively address crisis scenarios in the face of severe budget crisis and increasing engagement from new international powers such as China, Brazil, India, and Turkey.

The United States has an opportunity to harness international cooperation in addressing these issues, but officials must also consider where the U.S. government's comparative advantage lies. In a period of declining resources looking at what is feasible and achievable is even more critical. This has prompted the United States to review its current capabilities and the way it interacts with both the developed and developing world. Global challenges are so diverse and so complex that a new division of labor is necessary to achieve sustainable long-term economic and social development in at-risk regions like Northwest Africa.

New U.S. policy approaches

The Obama administration is seeking to transform U.S. global engagement to meet the challenges of the 21st century. The administration's 2010 National Security Strategy and the Defense Department's Quadrennial Defense Review outlined the emerging strategic environment facing the United States—highlighting the growing role of emerging countries and the further diffusion of global political, economic, and military power. The two reports are complemented by the first-ever Quadrennial Diplomacy and Development Review, as well as by the Presidential Policy Directive on Global Development, which look to add cohesion to the proliferation of government agencies involved in U.S. foreign and national security policy.¹⁶¹

All four of these reviews acknowledge climate change as a major factor in planning global development and security strategies. These reviews represent good initial efforts to widen our national security perspective to incorporate human security in determining the allocation of resources. Yet the current national security stance in Northwest Africa does not yet fully reflect these new priorities, with resources allocated primarily through the military apparatus and focused on traditionally hard security issues.

The numbers match this focus: The fiscal year 2012 budget request for the U.S. Africa Command, or AFRICOM, was \$289.7 million.¹⁶² Implemented through AFRICOM by the U.S. Department of State, the U.S. Department of Defense, and USAID, the request for theatre security cooperation for FY 2012 beginning in October of that year was up slightly to \$40.4 million.¹⁶³

Going forward AFRICOM will share responsibilities for humanitarian response with USAID's Office of Foreign Disaster Assistance, implementing the West and North Africa Disaster Risk Reduction Strategy. These programs are efforts to effectively coordinate defense, diplomacy, and development, but the actual funding commitments are still very much rooted in more traditional conceptions of national security.

This is reflected by the Department of Defense's programs in the region, which focus on counterterrorism and hard security, rather than a broad view of human security. U.S. military assistance for fiscal year 2011 to Nigeria provided \$50,000 for nonproliferation and counterterrorism programs, \$965,000 for military education and training, and \$1.35 million in general foreign military funding. Under a Defense Department counterterrorism training and equipment initiative known as the Section 1206 Program, which provides aid to 53 countries including Nigeria (FY 2012 request was \$500 million), Nigeria will receive maritime surveillance gear to monitor traffic in the Gulf of Guinea.¹⁶⁴

Although France is the primary provider of military assistance to Niger, the U.S. European Command has contributed to humanitarian assistance as AFRICOM has worked to build up its capabilities; some \$15 million was provided in 2010 under the Food for Peace program. Algeria, meanwhile, received \$950,000 in counterterrorism funding and \$950,000 in military education training funding in 2010. Morocco was the largest beneficiary of U.S. security assistance across the arc of tension in 2010, receiving \$1.2 million in counterterrorism funding,

\$1.8 million for military education and training, and \$9 million in foreign military funding.¹⁶⁵ It will be important to continue to expand AFRICOM's nascent capabilities, but long-term U.S. and international security cannot be achieved through the overused domain of the Pentagon.

The climate, migration, and conflict nexus is one challenge that will create both questions and opportunities for U.S. foreign policymakers navigating this new environment. How they choose to address this issue will have broader implications for the 21st century strategic environment, and the ongoing institutional debate in Washington will define the tools and resources available to confront these new challenges.

Attempts to develop innovative tools are underway. In late 2011 the 4th High Level Forum on Aid Effectiveness—bringing together ministers of developed and developing nations, emerging economies, and providers of South-South and triangular cooperative development—met in Busan, South Korea. At the conference an agreement for effective development cooperation was reached to begin addressing some of the shortcomings of the existing development framework, particularly regarding fragile states. The goals include shifting emphasis from effective delivery of assistance to partnerships for sustainable development, more effective sharing of information and best practices, and improving regional cooperation.¹⁶⁶

As described in our report, sharing information about climate change and human mobility among the countries that constitute the arc of tension would lead to a more comprehensive understanding of the current threats. The United States could play a constructive role in facilitating such exchanges, but the USAID regional mission in West Africa focuses on sub-Saharan countries and neither climate change nor migration play a prominent role.¹⁶⁷

The U.S. government's Global Climate Change Initiative aims to “integrate climate change considerations into relevant foreign assistance through the full range of bilateral, multilateral, and private mechanisms to foster low-carbon growth, promote sustainable and resilient societies, and reduce emissions from deforestation and land degradation.”¹⁶⁸ Integrating climate change into foreign aid and other programs to prevent global warming and reduce vulnerability to climate impacts in developing countries is a new and important step for the U.S. government, which over the past several years has approved development assistance consistent with international climate aid goals.

One method to address these challenges in North-West Africa is through the use of USAID “Alert Lists,” which analyze the overlay of fragility and projected future climate exposure. Using climate vulnerability estimates developed by David Wheeler at the Center for Global Development, the agency then ranks countries by vulnerability. The projected outcomes raise concerns; in most highly fragile states the danger of instability is exacerbated by environmental degradation (27 out of 33 countries). This approach is innovative and the country-specific information about societal capacities to cope with complex crises can provide the foundation for more comprehensive, regional approaches in the future.¹⁶⁹ More research is needed in this area, especially with regard to the interface of development and security policies.

Some first steps have also been taken in the field of adaptation and mitigation. For instance, during the so-called Conference of the Parties in Durban, South Africa, in November 2011 under the auspice of the U.N. Framework Convention on Climate Change, countries cooperated to create the Green Climate Fund.¹⁷⁰ Contributions to the fund will go toward the goal of mobilizing \$100 billion annually for adaptation and mitigation in developing countries by 2020, agreed to during the international climate change conference in Copenhagen in 2009.

In the United States money for the Global Climate Change Initiative flows through State Department, USAID, and the Treasury Department and is leveraged by bilateral and multilateral investments. The administration requested \$469.5 million for the Global Climate Change Initiative in the fiscal year 2013 budget request, but the funding faces a potentially hostile reception in the U.S. House of Representatives in a tight fiscal environment.¹⁷¹

From necessary adaptation measures in parts of Niger and Algeria where villages are being lost to desertification to mitigation of the cross-border riparian risks in the Niger River system, these efforts are crucial to the future of the arc of tension. In addition, more funding is vital to deal with rural-urban migration, identified as a core issue in a recent analysis by the International Organization of Migration, which called for efforts “to strengthen and diversify rural livelihoods, while preparing urban areas for an influx of rural migrants.”¹⁷²

USAID’s climate change and development strategy focuses on “climate resilient low emission sustainable development.”¹⁷³ USAID strives to directly address many of the challenges outlined in this report by integrating climate change throughout the agency’s development goals.

One important step in this direction is USAID's focus on agriculture and water management in Northern Africa, particularly Morocco, with projects to increase the capacity of regional public-sector bodies; measures include audits by private companies and assistance for agricultural cooperatives to convert to more water-efficient systems. These are important initiatives in a region where 80 percent of total water consumption occurs in the agricultural sector, especially if they can be built into broader self-management structures, such as a pilot program to help farmers with irrigation-advisory services via cell phone.

At the regional level a long discussed project to battle desertification in the southern Sahara, the "Great Green Wall" initiative, is finally underway, promoting development and more sophisticated resource management under the umbrella of the Community of the Sahel-Saharan States and the African Union. The goal is not only to establish sustainable agricultural and pastoralist livelihoods, but also to allay rural poverty and the resulting urbanization.¹⁷⁴

The African Union is one of the few entities to have established a comprehensive migration-policy framework.¹⁷⁵ Unfortunately, most of these initiatives still exist in isolation from each other and focus on only one aspect of complex crisis scenarios—we argue that connections need to be made between policymakers and practitioners who deal with environmental change, internal and transnational migration, and security. The United States and major Western providers of foreign assistance must develop research capabilities and innovative policy conversations along these interdisciplinary lines.

To better achieve results, USAID recently launched *USAID FORWARD*, a reform agenda that focuses resources on projects that are demonstrating results, improves the monitoring and analysis of sustainable development projects, and creates a Bureau of Policy, Planning and Learning to gather and share information on new development approaches.¹⁷⁶ By the end of 2013, almost every USAID mission around the world aims to have a so-called Country Development Cooperation Strategy in place working with host countries and other U.S. agencies to ensure programs address local requirements.¹⁷⁷ Again, these strategies should be placed in a regional context to address climate change, migration, and insecurity, as international borders are not defining in the Sahel-Saharan region.

These new programs still need to be fully implemented, but if properly executed they could be a useful indicator of how the United States will engage in these new fields of action in years to come. We support the recommendations formulated

by the International Organization for Migration calling for the establishment of a virtual clearing house documenting all relevant information on environmental migration, conversations to define comprehensive migration management policies, consultations with affected communities, interdepartmental coordination within governments, and “inter-State partnerships and dialogue on environmental migration, especially at the regional level.”¹⁷⁸ These strategies need to be coordinated with and integrated into the U.S. climate strategy and coordinated with the strategic regional reviews undertaken at the Pentagon.

Better deployment of existing foreign-assistance resources

Although global climate change is a crucial issue for USAID, the allocation of funding, especially across Northwest Africa, still focuses on agriculture and water. It is time to move on. Isolated agricultural and water projects in countries such as Morocco, for example, where 85 percent of agriculture is rain-fed and massive subsidies support wheat and energy imports, will not provide sustainable answers. USAID’s upcoming five-year strategy needs to focus more on integrated responses to complex crisis scenarios and less on establishing bureaucratic workflows. Currently, the reporting procedures and conditions for U.S. foreign aid are so cumbersome that some recipient governments opt out of available funding or look to other countries or private foundations with less burdensome restrictions for assistance.

But ways to enhance the efficiency do exist. The Busan Partnership, mentioned above, seeks to limit reporting requirements and the international assistance community would do well to eliminate reporting requirements that only serve particular industries or interest groups. For food aid programs, supporting local-purchase programs and ending cargo preference programs are good first steps, and USAID should be applauded for committing to purchase local goods wherever possible under the *FORWARD* program.¹⁷⁹

Other improvements could include the permanent elimination of earmarks for all U.S. foreign assistance programs. In general, ensuring a coherent approach across all of the U.S. development assistance by implementing Presidential Policy Directive 6—outlining a process to rebalance defense and development—is vital. The Policy Directive states in clear terms the need to “elevate development as a central pillar of our national security policy, equal to diplomacy and defense, and build and integrate the capabilities that can advance our interests.”¹⁸⁰

Foreign assistance has to add value and be coordinated and we need to better identify the core strengths of different donors in specific national or regional contexts. For instance, if China is investing in infrastructure, the European Union is offering assistance to legal institutions and agriculture, and private foundations are building a health sector, then the United States can add significant value in helping to build vibrant small- and medium-size enterprises, improving higher education, or providing technological support.

So far, the United States has not effectively combined forces with existing partners to coordinate projects and policies to maximize results and achieve strategic goals. The Millennium Challenge Cooperation—which delivers U.S. foreign assistance focusing on competitive selection and country-led implementation—has taken steps in this direction by partnering with host governments and the private sector.

The United States and the international community should keep a focus on police reform, a crucial aspect of democratic reform. For instance, effective law enforcement is an important response to northern Nigeria's problems with Boko Haram, or the growing operational capacities of Al Qaeda in the Islamic Maghreb in Algeria and Morocco. Effective and fair police forces bolster security and help institutionalize human rights. So far, the U.S. track record in this field has been mixed. In Nigeria, for example, efforts have been underway for over a decade with indifferent results. It is important that U.S. assistance for such programs is not misappropriated in the host country and achieves its intended outcome.

A new, more comprehensive approach is the best way forward. As the World Bank's 2011 "Conflict, Security, and Development" report notes, 1.5 billion people live in fragile or conflict-affected areas and no country exposed to insecurity has achieved a single U.N. Millennium Development Goal. Climate change and competition for natural resources add "new external pressures [...] that could heighten" risks of violence. Thus, the report places analysis of the impacts of climate change on areas at risk of violence as a priority for future research and policy work. Only this difficult process can establish more effective governance in fragile states, strengthening legitimate institutions and governance to provide security and the rule of law to break cycles of violence. Based on the World Bank's 2011 report, we recommend a broad strategy that includes the rule of law and citizen security.¹⁸¹

As mentioned, police reform is an important part of this effort but needs to be combined with judicial reform and increased overall transparency of government. The United States needs to overhaul its internal mechanisms for assisting in police

reform, as programs are often poorly coordinated between the different agencies, contracted out to private companies, or piecemeal. In addition, these efforts in Northwest Africa are not usually part of a broader security sector-reform strategy as they are in Afghanistan, Liberia, the Democratic Republic of Congo, and Iraq. Domestic civilian-law enforcement needs to be strengthened as national militaries are not suited to practice civilian-law enforcement.

Flexibility is key to enable foreign-assistance programs to anticipate future problems associated with climate change, migration, and security. USAID has begun to build consensus on emerging threats and priorities with partner governments and needs the ability to react to new challenges or changes in partner status or priorities.

The Obama administration consults with other countries on emerging crisis situations, but those consultations are frequently divorced from the funding stream. This practice needs to be deepened through consultation, scenario planning, and extended dialogues with Congress. While foreign assistance often requires long-term commitments to be effective, we must retain the ability to redeploy funds or make discretionary funds available to respond to new developments.

Nongovernmental institutional solutions are also important. A number of scholars and experts are calling for migration-management institutes to bring together experts to generate policy ideas for complex crisis scenarios. They also emphasize the need for nongovernmental organizations to change and integrate their strategies regarding humanitarian aid and development assistance to take into account climate change threats and associated migration issues. We support the recommendation to move from immediate crisis response toward long-term and comprehensive strategies of rebuilding, resettlement, and development. Cooperation between all stakeholders is crucial for effective policy making and climate change needs to be placed at the center of conversations about migration-related crises.

A few scholars have also called for a special or legal definition of internally displaced persons as refugees, despite the fact that they have not crossed international borders, arguing that they migrate for the same reasons as refugees just simply do not leave their country. Changing the classification could help draw more international attention to the problems of environmental migrants, which in turn could result in increased and improved policy making.¹⁸² Those suggestions are worth consideration.

In addition, the so-called Climate Change Displacement and Resettlement model combines existing models on development-induced displacement and resettle-

ment- and disaster-induced displacement to address the complex nature of climate change displacement, specifically targeting the needs of internally displaced persons. The model provides baselines for strategies dealing with sudden-impact and slow-onset climate phenomena. It was proposed as a general framework from which to begin defining a disaster model that more directly addresses the needs of climate migrants. The model is still very much “a starting point for the incorporation of current literature and strategies,” according to a leading expert on climate change-induced migration, Andrea C.S. Berringer, and more research is needed for policymakers to understand climate migrants.¹⁸³

U.S. foreign-assistance policy has the capability to incorporate these new ideas in order to address complex crisis scenarios in new regional contexts. Currently, the funding for USAID “country teams” comes primarily from the country missions, but it is difficult for mission staffs (and local partners) to understand the complex drivers behind the nexus of climate change, migration, and conflicts. It is important that we increase awareness at the strategic and tactical levels across the U.S. government.

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