UNITED STATES INSTITUTE OF PEACE www.usip.org

SPECIAL REPORT

2301 Constitution Ave., NW • Washington, DC 20037 • 202.457.1700 • fax 202.429.6063

Aaron Sayne

Climate Change Adaptation and Conflict in Nigeria

Summary

- Nigeria's climate is likely to see growing shifts in temperature, rainfall, storms, and sea levels throughout the twenty-first century. Poor adaptive responses to these shifts could help fuel violent conflict in some areas of the country.
- A basic causal mechanism links climate change with violence in Nigeria. Under it, poor responses to climatic shifts create shortages of resources such as land and water. Shortages are followed by negative secondary impacts, such as more sickness, hunger, and joblessness. Poor responses to these, in turn, open the door to conflict.
- Drawing lines of causation between climate change and conflict in specific areas of Nigeria calls for caution, however, particularly as the scientific, social, economic, and political implications of the country's changing climate are still poorly understood. President Goodluck Jonathan's government needs to initiate a serious program of research and policy discussion before taking major adaptive steps.
- Government and private actors also need to ensure that particular adaptive responses do not themselves fuel violence but actively help build peace. Successful adaptation measures will be crosscutting in design and impact, based on inclusive planning and implementation, steer clear of political patronage traps, and confront political and scientific uncertainty.
- Solid engagement on the part of the Nigerian federal government is key to achieving the best outcomes, even if most adaptation is done privately. Thus far, official responses have been weak. Along with better information and discussion, Nigeria needs a main federal oversight body to coordinate research and policy, larger roles for sister agencies, and an implementation plan. The country also needs and deserves the help of more developed nations in the form of both adaptation funding and technical assistance.

About the Report

Climate change, a growing number of voices in media and policy circles warn, is raising the risks of violent conflict in the twenty-first century. Dire futures are predicted for some of the world's poorest, least prepared countries and their most vulnerable citizens. This report, sponsored by the Centers of Innovation at the U.S. Institute of Peace, evaluates these claims for conflict-prone Nigeria. Based on a comprehensive literature survey, interviews with senior government officials, academics, and private sector figures, and the author's work as a conflict analyst in Nigeria, the report calls for a more nuanced approach to mapping the links between climate change and conflict. It reviews evidence of such links in Nigeria and outlines a process for achieving conflict-sensitive adaptation to the effects of climate change.

About the Author

Aaron Sayne is the West Africa Program Director for the Transnational Crisis Project. Also a practicing attorney, he has worked on oil, conflict, and economic governance issues in Nigeria since 2005.

Special Report 274 June 2011

Contents

Introduction 2
Identify Areas that Increase the Risk of Conflict 2
Isolate Adaptation Responses 8
Choose Governance Structures and Tools for Cooperation 12

Introduction

Nigeria, a nation of 150 million people shoehorned into an area twice the size of California and confronting deep ethnic divisions, development challenges, and a history of poor leadership, already struggles to meet its resource needs and wants. Failure to share limited resources well underlies many of the violent conflicts that dot the country's social landscape, pitting neighbor against neighbor, Muslim against Christian, patron against client, citizen against the state.

Nigeria's climate is also likely to see growing shifts in temperature, rainfall, storms, and sea levels throughout the twenty-first century. These climatic challenges, if unaddressed, could throw already stressed resources such as land and water into even shorter supply. Moreover, poor responses to resource shortages could have serious negative secondary effects, including more sickness and hunger, fewer jobs, and poor economic growth, which in turn could open the door to more violence. Indeed, in a few conflict-prone spots such as the Niger Delta and the arid northeast, this sequence is probably playing out on a limited scale already.

Nigeria needs to consider the potential of climate change to fuel violence as the country figures out how to adapt. Although inadequate analysis has clouded the picture of how climate change will affect Nigeria's environment and resource base, and experts are divided over the precise causal links between climatic shifts and violence, there is broad agreement that without intelligent, even-handed responses, the impacts of climate change could compound the risks of conflict.[1]

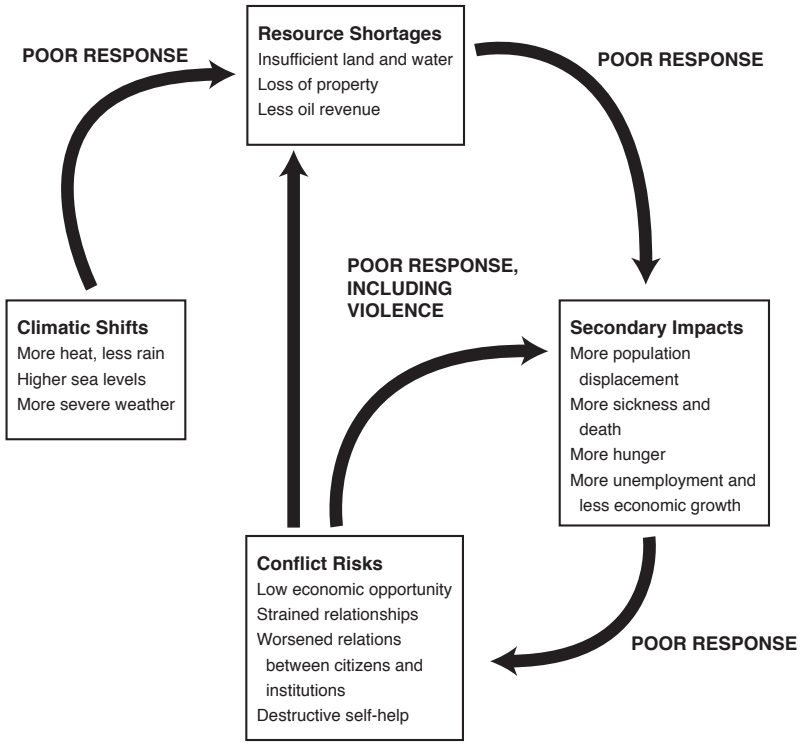
No recommendations for specific adaptation measures in Nigeria are made here. Instead, what follows outlines the basic causal mechanism potentially linking Nigeria's changing climate to conflict and presents some prerequisites for conflict-sensitive adaptation measures. So far, Nigeria's government has demonstrated mixed determination and success in tackling both climate change and the country's deep problems with violence, though the 2011 postelection period may show new focus. Much depends on how national leadership moves forward in basic data acquisition, modeling, and policy development.

Identify Areas That Increase the Risk of Conflict

As a first step toward developing feasible adaptations to resource shortages resulting from climate change, President Goodluck Jonathan's government needs to root its emerging adaptation policies in a better understanding of the physical, social, economic, and political implications of climate change, including how it can compound the risks of conflict. Before undertaking any major action, the government should pinpoint the country's most vulnerable areas, be they populations, regions, or productive sectors, and gauge likely risks and damages resulting from climate change. This effort means assessing (1) the country's likely climatic shifts, (2) how these shifts could contribute to resource shortages, (3) the possible secondary impacts of shortages, and (4) how shortages and their secondary effects could fuel violence. Available evidence suggests the basic causal mechanism diagrammed in figure 1.

Climatic Shifts. Understanding Nigeria's climate future depends on better country-specific and local-level analysis. Predictions so far have relied heavily on models for the world or West Africa. The foremost of these, by the Intergovernmental Panel on Climate Change (IPCC), did identify Nigeria as a climate change "hot spot" likely to see major shifts in weather in the twenty-first century.[2] Yet there is a need to examine closer: the country's 350,000 square miles, situated in a tropical belt between the 4°N and 14°N, 3°E and 15°E parallels, span six major vegetation zones, from mangrove-saltwater swamp to montane

Figure 1. Climate Change and Conflict in Nigeria: A Basic Casual Mechanism



regions to grasslands to desert. Soils and weather patterns vary widely, and altitudes range from 3,000 feet to less than 10 feet above sea level. For this reason, no single generic model or adaptation scheme could reasonably apply to the whole country.

That said, available evidence points to three main types of shifts that could ultimately feed into conflict. First, parts of the country—the arid north especially—are facing the one-two punch of more heat and less rain. West Africa's interior, the IPCC predicts, will see 10 percent less rainfall by 2100. Parts of Nigeria's northern Sahel area (the transition zone between the Sahara desert to the north and the grasslands to the south) get less than 10 inches a year already, a full 25 percent less than thirty years ago. Temperatures can top 105 degrees Fahrenheit and are likely rising. Second, many parts of the country will likely experience more severe weather. Data in this area are sparse, but government figures show torrential rains and windstorms becoming harsher and more common across Nigeria. Over the past forty years, for instance, recorded volumes of torrential rains increased 20 percent across various southern states, some of which already see up to 160 inches of rainfall a year, with wet seasons lasting eight to ten months.[3] Third, along the southern coastline, sea levels could rise 1.5 to 3 feet by century's end—a further increase over the nearly 1-foot rise observed in the last fifty years.[4]

Resource Shortages. Nigeria could see serious resource shortages this century if it responds poorly to these three types of climatic shift. Again, more work on prediction is needed: data for households, communities, and sectors are patchy, and so far a 2009 study by the UK's Department for International Development (DFID) represents the only wide-ranging, serious attempt to model the impacts of climate change on Nigeria's resource base.[5] Future analyses of possible shortages should factor in problems such as man-made environmental degradation and inefficient resource management. Blaming man-made ills on the weather risks a poor response.

Existing data are still good enough, though, to isolate four types of possible shortages under status quo levels of response to climate change. Land scarcity is the first issue. The

combination of more heat plus less rain raises the specter of widespread desertification, especially in northern Nigeria. According to some estimates, fully two-thirds of Bauchi, Borno, Gombe, Jigawa, Kano, Kaduna, Katsina, Kebbi, Sokoto, Yobe, and Zamfara states could turn desert or semidesert in the twenty-first century. Already the Sahel creeps south by approximately 1,400 square miles a year, swallowing whole villages; government geological data show a 400 percent increase in sand dunes over twenty years.[6] Meanwhile, hydrological modeling indicates that a 1.5-foot sea level rise would submerge more than 11,000 square miles of coastal land.[7] Much of Nigeria's densely populated, increasingly urbanized 500-mile-long southern coast is less than twenty feet above sea level; the Delta region, with its easily flooded network of estuaries, rivers, creeks, and streams, sits especially low, as does Lagos. How far potential land losses overlap with vulnerable assets, populations, and sectors of high strategic importance needs better mapping. Good analyses will also account for the inefficiencies of Nigeria's byzantine land-use systems and man-made land destruction—the traditional burning of fields by northern farmers, for instance, or the Delta's many oil spills.[8]

Water shortage is a second concern. Usable water is already at a premium for much of Nigeria. Poor management and government supply failures, not limited availability, are likely the biggest causes today. The UN Food and Agriculture Organization rates Nigeria's water use and conservation practices "poor" by international and African standards, and only 8 percent of homes nationwide have treated pipe-borne water.[9] Yet climatic shifts could also factor into some shortages. More heat plus less rain is already creating drought conditions in parts of northern Nigeria. This is troubling when government data show rural households harvest rain for more than half their total water consumption and northern groundwater tables have dropped sharply over the last half century, owing partly to less rain.[10] In parts of southern Nigeria, flooding caused by sea level rise is also contaminating freshwater aquifers, rivers, and stock-watering points, leaving them with high salinity and more polluted with sediment and sewage.[11]

Climate change may also leave Nigeria increasingly short of at least two types of man-made resources. Sea level rise and severe weather could cause significant property loss. Statistics here are scarce, but between 1992 and 2007, wind- and rainstorms alone damaged or destroyed at least $720 million in economically productive assets across twelve of Nigeria's thirty-six states.[12] Finally, climate change could leave the petroleum-dependent public sector with less oil wealth. Today, 80 percent of all government revenues and 97 percent of Nigerian foreign exchange come from Niger Delta oil. Some hydrological modeling says 3 feet of sea level rise could put nearly all the Delta's onshore oil fields under water.[13] Some industry watchers and officials believe the added production costs, drops in investment, and lost or deferred production could be heavy.[14]

Secondary Impacts. At least four main types of negative secondary impacts could follow poor responses to climate change–induced resource shortages. First, some populations could experience more sickness and death. Nigeria's public health profile is already dismal.[15] Would more polluted water from floods or sea level rise mean increased mortality from malaria, cholera, or heat stress? The World Health Organization (WHO) and International Red Cross have seen troubling illness patterns among survivors of recent severe weather events, as well as in internally displaced person (IDP) camps bursting with refugees from violence.[16] And what are the casualty risks of more severe weather, such as torrential rains and windstorms? Government and WHO figures show at least 1,600 Nigerians died in 20,000 floods over a decade.[17]

More human displacement is a second possible impact. Estimates of persons left homeless by severe weather range into the hundreds of thousands, and resource shortages may be accelerating migration in some parts of the country, especially the north.[18] One 2011

study found the homes of 9.7 million Nigerians could be vulnerable to rising seas by 2050.[19] Unfortunately, Nigeria does not keep good data on migration, climate change related or not, yet existing figures show a serious IDP problem: conflict alone displaced three million people between 1999 and 2006, with at least 80,000 homeless at the end of 2009.[20]

Third, poor responses to resource shortages could result in more hunger. Food security is a many-headed issue, shaped by such factors as technology, trade policy, and market performance.[21] Nigeria has not suffered the famine woes of its neighbors Niger or Chad, but its hunger profile is not good,[22] and climate change could worsen it. Some 85 percent of all Nigerian agriculture is rain-fed, and many crops are sensitive to even tiny shifts in rainfall and temperature. Some experts already link mounting crop failures and declining yields in the northeast to higher temperatures and drought.[23] What little irrigation exists is increasingly stressed. For instance, less rainfall and higher temperatures have helped shrink Lake Chad, once the world's sixth largest lake and the north's biggest irrigation resource, to one-tenth its size a half century ago.[24] The rising sea is also flooding farmland along the southern coast and making soils too salinized for planting. Other reports indicate that more severe rain is causing massive sheet erosion in the sandy soils of the southeast, again resulting in lower yields.[25] All of this occurs as production of staples like maize and yam is already stagnant, productivity per hectare is low by commercial standards, and at least four to five million new Nigerians are born each year, placing further stress on food sources.[26]

Finally, climate change–related resource shortages could contribute to lower economic growth and more unemployment. Nigeria's human capital is already poorly leveraged; in 2009 the national unemployment rate was 19 percent.[27] No one has modeled climate change's possible effects on the labor market yet. Unemployment has many causes besides weather, yet there is cause for concern. Nigeria's economy relies heavily on climate-sensitive occupations: farming, fishing, and logging occupy 70 percent of the workforce, contribute over half of GDP, and account for the majority of jobs created recently.[28] The 2009 DFID study concluded that without a strong response, climate change would cost the country between 6 percent and 30 percent of its GDP by 2050, worth between $100 billion and $460 billion. The authors sketched productivity and growth losses in roughly a dozen key sectors and predicted that agriculture's share of GDP could fall 38 percent by mid-century without deep investment in adaptation.[29] Similarly, the Federal Ministry of Environment has calculated that 3 feet of sea level rise would cost Nigeria $43 billion in GDP over thirty years.[30]

Conflict Risks. No one knows the full security implications of climate change. Some analyses have implicated shifting weather in violent social collapses across the centuries, from medieval China to the collapse of the Mayan civilization to recent events in Darfur. Forty percent of all intrastate conflicts in the last six decades involved disputes over limited natural resources, two dozen of them since 1990. Not all had links to climate change, but adding resource disputes to the mix generally doubles the average length and relapse rates of civil violence. Conflicts over resources have long been a depressingly familiar part of Nigeria's social order. According to one estimate, communal violence, most of it involving contested resources, killed at least 10,000 Nigerians in less than a decade.[31] Again, links to climate change can be more or less strong. A case in point is Nigeria's frequent farmer-herder conflicts. In a pattern seen across the Sahel since the thirty-year drought, feed and water shortages caused partly by desertification and drought have sent nomadic pastoralists, most of them ethnic Fulanis, wandering south, outside their normal grazing routes. At the same time, a mix of weather-related factors has pushed farmers to cultivate more land each year, leaving wanderers fewer places to water and graze their stock. The resulting contests may have been responsible for the deaths of several hundred Nigerians since the return of democracy in 1999.[32]

A mix of weather-related factors has pushed farmers to cultivate more land each year, leaving wanderers fewer places to water and graze their stock.

Drawing lines of causation between climate change and conflict requires caution. Every conflict has many causes, and people do not automatically start fighting when the weather heats up, their crops shrivel, or their jobs disappear. Policy analysts, the media, and academia also disagree on the magnitudes and mechanics of risk. On one side, available statistical research says the causal links between climate change and conflict are subtle, with many contingencies.[33] Against this nuanced view, other voices sound dire, deterministic alarms—arguing, for instance, that climate change "may well represent a challenge to international security just as dangerous—and more intractable—than the arms race between the United States and the Soviet Union during the Cold War or the proliferation of nuclear weapons among rogue states today."[34] It is unknown which set of views will prove more correct.

These difficulties noted, there are grounds to believe Nigeria's changing climate could lead to violence. Available evidence points to the following sequence as a basic causal mechanism:

- an area, be it a region, population, or sector, sees some climatic shifts;
- poor responses to the shifts lead to resource shortages;
- poor responses to the resource shortages heighten one or more structural conflict risks.

Again without making predictions specific to any one area, this report hypothesizes four possibly relevant structural conflict risks for Nigeria. At their core, all four are manifestations of poor institutions, relationships, and individual choices. Anticipating violence in a given area wants better modeling, with the use of case studies, statistics, and participatory fieldwork as needed. The toughest cases could also feature multiple feedback loops of causation. For example, a poor response to some secondary effect of a resource shortage may be more likely—and more likely to be followed by violence—in areas with existing high conflict risks. This failure to respond is especially likely if the high risk levels reflect how relationships, institutions, or choices—all arguable measures of capacity and will to respond—have gone sour. In some cases a bad response may increase the risk of violence by further sapping the quality of relationships, institutions, or choices. The fighting that results could in turn help destroy the very scarce resources involved in the dispute, perversely deepening the shortage.[35]

Low economic opportunity is the first conflict risk potentially relevant to Nigerian climate change. Anger over economic stagnation and joblessness turns up in opinion polls and conflict narratives across Nigeria. The power of climate change to disrupt economies and eliminate jobs needs closer study, but existing evidence suggests at least two troubling potential links to violence, both involving the young. First, climate change could increase the risk of violence in some areas where youth are especially affected. A full 60 percent of Nigeria's population and three-quarters of its unemployed are under thirty. Evidence in and outside Nigeria suggests that alienated young people who lack resources and economic opportunity are more likely to join rebellions.[36] In the dusty streets of Borno state's capital, for instance, the violent antiestablishment Islamic group Boko Haram attracts rafts of jobless young men, as do the Delta's many militias and gangs.[37] Second, more jobless youth could deepen the recruitment pool for political violence. Politicians bankroll, mobilize, and manipulate much of Nigeria's worst violence, often as a survival mechanism. Idle young men and women already provide the muscle for much of this unrest.[38]

Declining social and economic ties are a second possible conflict risk. Weather-induced shifts in economic opportunity, for instance, could undercut existing trade relationships that act as barriers to violence, leaving mistrust, rumor, and broken agreements in their place. Two examples illustrate the problem. In the south, many farmers now plant over grazing routes long agreed upon with Fulani herders, in some cases leading to violence. Their reasons for doing so are partly climate related: shifts in planting techniques driven by changing

rains and temperatures have made the dung Fulani offer for grazing and watering rights less valuable.[39] And in the Delta, members of one coastal fishing community recall that a long-running land dispute with their farmer neighbors turned bloody after the rising sea stunted the neighbors' rice crop. The two groups had traded rice for fish for decades. "When there was no more trade, we stopped seeing each other. There was no more talk about anything, including the land, and soon there was fighting," said one resident.[40] Case studies across Nigeria show that as social fabrics decay and old understandings are plowed under, groups tend to rely more on divisive identity politics to sort the haves from the have-nots. The foremost culprit here is the notion of "indigeneity." Meaning roughly "original inhabitant of a place," this slippery constitutional category is used across Nigeria to limit access to natural resources and public goods; it has also figured in much of the nation's worst violence.[41] Greater manipulation of categories like indigeneity is both a symptom and a cause of the breakdown in moral narratives around land, identity, and history. The economic, social, and psychic stresses of climate change could speed up the decay.

As social fabrics decay and old understandings are plowed under, groups tend to rely more on divisive identity politics to sort the haves from the have-nots.

Negative relations between citizens and government are the third risk. Poor responses to climate change could affect how Nigerians view the credibility, stability, and relevance of their leaders and public institutions. Such declining perceptions, in turn, could help stoke violent rebellions in some areas. Recently, Nigeria has seen more violence that both explicitly targets the state and justifies itself by citing government failures. State officials and property have long been fair game in the ill-governed, environmentally fragile Niger Delta, where dramatic attacks by nonstate armed groups have imposed huge costs on the whole country.[42] In the increasingly parched, violent northeast, members of groups like Boko Haram explain their acts by voicing disgust with government.[43]

Most adaptation to climate change will probably be done privately, though plenty of Nigerians would be expected to look to the political class for help. Some may see adaptation as the government's duty; millions of others, lacking insurance and living on $2 or less a day, may have no choice.[44] Yet the social safety net that the government provides is weak to nonexistent, and disaster management infrastructure is rickety.[45] Poor responses could also heighten already high perceptions that the government is unaccountable and corrupt, no matter how hard leaders try.[46]

Of course, some climate change–induced resource shortages and their secondary impacts could truly make leadership worse. Less oil money due to floods in the Delta, for instance, could slash the government resources available for responding to crises. It is also worth asking whether avoiding climate change as a policy issue now could ultimately deepen public corruption and make elite jockeying for oil rents more violent. Agriculture and oil, both vulnerable to climate change, pay many Nigerian politicians handsomely. Some local conflict analysts suspect, though none have tested, that official looting, assassinations, and coups all tend to increase when government is short of cash.[47] A huge culture of bargaining over public money thrives among Nigeria's elite, turning oil wealth into a kind of sloppy glue that holds the country's 36 states, 774 local governments, and more than 250 ethnic groups together. It is also possible that if their climate-sensitive private incomes contracted, some leaders might look more to the public till to save their lifestyles and patron status. Granted, violence would not necessarily follow: public corruption is a source of both conflict and stability across Nigeria. But more of it could further erode institutions and relationships in destabilizing ways.

Destructive self-help is the fourth potential structural conflict risk. Those who see the state as weak or self-serving may choose to fashion their own responses to climate change's mounting impacts. These choices could be good or bad, and some of the worst could factor into violence. State failures to respond, for instance, could encourage more crime. In parts of the north and southwest, cases of cattle rustling and rape are spiking as farmers

and herders stop taking water and land disputes to court. Banditry, not unlike that seen in drought-ridden Chad, Ethiopia, or Somalia, is also bubbling up in some arid, lawless, economically stagnant corners of the country.[48] Organized crime already thrives in the Niger Delta on a scale as yet unseen in the rest of Nigeria, though other areas appear to be taking notes.[49] And while it has its own quirks, the Delta shows how a cocktail of weak institutions, sour relationships, bad choices, and environmental crisis can bring people to see violent self-help as economically rational, morally justified, and socially productive.

Migration is also something of a wild card among the climate change–induced conflict risks. Nigerians could move in anticipation of climate-related crises or flee trouble once it lands. Results again could be mixed: relocating might lessen the secondary effects of resource shortages or deepen them, both in the spots migrants leave and the places they move. Sudden influxes of migrants also can strain government's capacity to respond and encourage more divisive use of identity politics, as attested by the long history of Christian versus Muslim and "indigene" versus "settler" killings in the migrant-heavy urban slums of Kano, Kaduna, and Bauchi. Research outside Nigeria suggests that citizenship and service delivery policies that absorb rather than ghettoize and further stress the displaced are key to avoiding conflict when migration soars.[50]

Isolate Adaptation Responses

The quality of response to climatic shifts, resource shortages, and their secondary impacts is key to whether affected areas edge closer to violence.

As the above analysis shows, the quality of response to climatic shifts, resource shortages, and their secondary impacts is key to whether affected areas edge closer to violence. For those regions, sectors, or populations at greatest risk of climate change–related conflict, adaptive responses should also try to build peace, or at least avoid unrest. In the country's already restive areas, this means more than "doing no harm." Rather, stakeholders need to cooperate on measures that actively address issues such as resource competition, poisonous relationships, and youth unemployment. Even where peace is the status quo, adaptation should still help build social and economic resilience against future violence. These are not easy goals to achieve. For the government, conflict sensitivity will—and should—compete with other features such as effectiveness, urgency, cost, and feasibility when choosing responses. There are also big knowledge gaps: Nigeria's conflict landscape is highly diverse, and how better natural resource management can curb violence is understudied.

Adaptation versus Mitigation. Measures that help societies and economies adapt to climate change effects offer strong chances to address conflict. Adaptation and peacebuilding use many of the same tools: research, education, dialogue, participatory planning and management, and targeted investment. Both can be focused down to the local level, where some of climate change's worst impacts and conflict's deepest roots lie in Nigeria. Moreover, after the irresolution of the UN's 2009 Climate Change Conference in Copenhagen, the fight to keep global warming at easily tolerated levels seems over for now, and Nigeria was never a major player anyway.[51] Nigeria, like other African nations, is dwarfed as a greenhouse gas producer by more industrialized nations. World Bank data show Nigeria's emissions are less than one-half percent of global totals—more than 500 times less than U.S. emissions alone. Nigeria being the world's second largest flarer of gas does not change matters much.[52]

This does not mean that mitigating Nigerian emissions is not worthwhile, or that adaptation is a cure-all. Substituting low-emission liquefied propane gas for the dirty kerosene and firewood millions of Nigerians cook with, for instance, would result in steep emissions reductions, better health, and cost savings. Moreover, even the best adaptation policies will never offset all climate change effects or resolve conflict by themselves. There are also questions of timing: many benefits from adaptation likely accrue only after a period of years, while

mitigation addresses the causes of climate change now. As such, weak mitigation policies could raise the stakes for adaptation work down the road.

Finally, in some cases mitigation could also be leveraged as a weapon against conflict. Violent agitators in the Niger Delta regularly list the heat, health effects, and conspicuous waste of gas flaring as key grievances, and harnessing the gas lost to flaring could give millions fresh economic opportunity. As things stand, while at least 70 billion cubic feet of gas go up in smoke each year—roughly the annual gas usage of twenty-three cities the size of Washington, D.C., or all of Brazil[53]—150 million Nigerians share, unequally, less than 4,000 megawatts.[54] Many household and market surveys cite electricity supply as both the leading obstacle to wealth creation and a top priority for government investment. Turning power into a resource that communities manage together—by creating rural electricity co-ops, for example—could also catalyze work on deeper social problems. Replacing Nigeria's fast-falling trees is another option, one that mixes adaptation, mitigation, and peacebuilding.[55] Planting new trees could stabilize wetlands and coastline vulnerable to floods, cut emissions, and even create jobs while boosting economic growth—reviving Nigeria's palm oil plantations, for instance.[56] Renewable energy sources, it should be noted, remain underexplored in the country.[57]

Turning power into a resource that communities manage together could catalyze work on deeper social problems.

Anatomy of Successful Adaptation Responses. This report does not offer recommendations for specific initiatives. Each area has its own needs and vulnerabilities, and there are many variables to be analyzed. For example, a given response could be timed to address observed or expected climatic shifts, resource shortages, the secondary impacts of shortages, or any violence or other poor reactions that follow. What is provided could similarly take at least four forms.

First, responses could help protect existing resources. The government, for instance, could fund the construction of dykes or levies to keep communities or farmlands from flooding. Second, adaptation could provide new resources. Officials could resettle a flooded agricultural community along the coast to some uncontested, upland area, for example, or provide farmers with seeds that thrive in saline, less mineral-rich soil. Third, governments could offer new rules and models for managing shared resources. This approach could include introducing cooperative or commons-based land-use models on contested turf or setting up new dispute resolution mechanisms. Best efforts would both reduce resource shortages and their secondary impacts and open up social spaces for improving relationships and reviving institutions. Finally, adaptation could take the form of education. Government or private actors could give those affected by climate change information on better resource management and the destructive effects of resource contests.

At least two things should inform all conflict-sensitive adaptation. First, the government and its partners need to back any initiative with a concrete picture of how it will affect conflict. Will a given measure offer economic incentives against violence, or provide citizens autonomy from political violence? Will it improve relations between Nigerians and government, or help bring divided neighbors together? Should the measure target relationships or choices that stoke violence, or others that help hold it back? Will it help fix what is broken in a particular economy or social setting, or nurture what works?

Second, initiatives should be assessed against the governance situations and conflict dynamics of the areas they are meant to aid. For instance, it is crucial that those charged with designing and implementing a particular adaptation program ask how it might affect group power relations. No one should foist assistance, whether programming or financial aid, on areas that cannot absorb it peaceably. Other necessary questions to ask include: Which actors will manage efforts most intelligently and fairly? Will the assistance feed existing economies of violence? What procedural safeguards should there be, and what steps should government and its partners take to build leadership and cooperation in the target area?

Nigerian socioeconomic programs are often no stronger than the acts and intentions of their purported champions. Assistance with adaptation will also create winners and losers. If the lines drawn overlap conflict fault lines or encourage new fissures, there could be trouble.[58]

Conflict-sensitive adaptation delivering best value will likely also show the following four characteristics. First, it will be crosscutting in vision and delivery. Adapting to climate change, it is sometimes said, means "adapting development." Yet conflict-sensitive adaptation raises the bar even higher. A limited project portfolio ghettoized within the Ministry for Environment is unlikely to suffice, nor will opening a few lines of communication between ministries and donors providing traditional development goods such as food, health, or education. If the impacts and conflict risks of climate change cut across Nigerian populations, sectors, markets, and bureaucracies, so also should adaptation planning. Thus, traditional development work should be connected to action on security, peacebuilding, trade, communications, and disaster management. This will take high levels of political will, time, and some centralized oversight.

If the impacts and conflict risks of climate change cut across Nigerian populations, sectors, markets, and bureaucracies, so also should adaptation planning.

Second, successful adaptation will be based on inclusive planning and implementation. The need for central oversight does not mean Abuja should unilaterally decide and execute all adaptation efforts. Rather, responsibility should be shared on a case-by-case basis among those stakeholders with the best mix of skills and interests. Many communities and households, for instance, have local knowledge crucial to crafting effective responses. Involving them directly in the planning and implementation of adaptation measures would create opportunities for strengthening resilience and the social fabric. If approached in a conflict-sensitive manner, climate change adaptation initiatives could even help reconcile divided groups by offering a common enemy and a shared set of tasks. Government should likewise not overlook the private sector as a source of adaptation and peace.[59] The responsible use of public-private partnerships should enlist companies to manage adaptation work, or businesses could set out on their own. In the Delta, oil companies have a clear interest in investing. And while civil society's know-how with respect to the technical and research sides of climate change is relatively light, there are pockets of deep experience in social development and conflict work.

Failure to involve lower-level actors in developing and implementing adaptation measures, on the other hand, could spark fresh conflict. Some communities may see wholly government-imposed measures as confusing, corrupt, and alienating, and ignore or even resist what the measures aim to do. At the same time, few local residents will have the technocratic knowledge or experience necessary to accomplish complex adaptations successfully or to link efforts to the larger development picture. Whoever oversees the work will need to mix good politics with sound science and economics.

Third, the most successful initiatives will not be treated as just a species of political patronage. Today, all levels of Nigerian society sag under the weight of a development logic often inseparable from, or corrupted by, the logic of patronage. This is consistent with the fundamental feature of Nigeria's political economy: a no-tomorrows focus on siphoning oil rents from the center. Granted, patronage contracting does provide some short-term stability in Nigeria. Yet it is also a killer of sound policy and tough to manage.[60] Anger and mistrust bubble over quickly when expectations go unmet, often feeding not any single conflict but a grubby, fast-mutating system of wealth sharing in which violence plays many roles.[61] Adaptation spending also should not be used to enrich the violent. During past administrations, Niger Delta militant leaders and their associates won big government shoreline protection contracts, for instance.[62] This devolving of adaptation funds to militants should not be repeated.

Finally, successful adaptation will have to confront uncertainty. Science will never provide an exact climate change forecast. However sophisticated the models, predictions will

sometimes prove unreliable or even contradictory. Likewise, analyzing conflict after the fact is always simpler than foreseeing it. Vexing knowledge gaps in both areas will abide, regardless of the number of studies government and donors undertake. And some key problems will continue to hover outside Nigeria's full control.[63] Public institutions handling the country's adaptation policy will need to plan and spend to permit flexibility and experimentation. They should also adopt "no regrets" policies that yield good results even if the environment does not change in expected ways.

A Watershed Moment? Even as conflict-sensitive adaptation to climate change requires policymakers to zoom in to fine levels of analytic detail, Nigeria needs to zoom out to the bigger picture. President Jonathan's government could use climate change as one avenue for starting to negotiate twenty-first century Nigeria, a chance to reflect on what social and economic future the country sees for itself. The top challenge today is settling on new notions of human ecology: Nigeria's GDP, according to the World Bank, is the world's 41st highest but only the 161st highest per capita, and during the 2000s GDP and unemployment rose, paradoxically, in near parallel formation. With an annual population growth of 3 percent—meaning as many as 740 million Nigerians by 2100—these trends cannot be sustained.

President Jonathan's government could use climate change as one avenue to reflect on what social and economic future the country sees for itself.

How much longer can Nigeria rely on growth-poor sectors such as farming for new jobs and economic stability? Making agriculture the future of Nigerian jobs seems a fool's bet, even if productivity improves and climate change does not bite hard. Right now, Nigeria is the only fast-growing sub-Saharan African country in recent years to have used farming for its growth base, and the young generation does not seem to want the work.[64] Despite costly government incentive packages, youth involvement in farming has been falling for years as millions decamp for the big cities. Forty-seven is the average age of today's Nigerian farmer.[65] Ideally, market forces would shift resources elsewhere if climate change helped end Nigeria's competitive advantage in agriculture. This cannot be presumed, though: already many young, uprooted Nigerians are finding big city promises elusive.

This last issue raises a second major question: How will Nigeria handle its shift from a primarily rural to an urban society? Around half of Nigerians live in cities already. By 2015, according to the UN Department of Economic and Social Affairs, Lagos will be world's third largest megacity, trailing Tokyo and Bombay, with 23 million inhabitants. Census figures show the population of Kano has grown fourteenfold in forty-five years. Climate change would be expected to multiply the pressures of rapid urbanization—cutting the food supply, for example, even as urban demand rises. Depending on policy choices and investment patterns, a future urban Nigeria could face two divergent paths. Along one, scores of underworked, underserved, underskilled, and ethnically divided youth jostle one another in seething slums; on the other, an emerging middle class finds new wellsprings of affluence, stability, and innovation.

This challenge leads to perhaps the most important question facing Nigeria today: what future lies beyond oil? A growing body of research suggests a country's chances of escaping the so-called "resource curse" turn heavily on the investments its public institutions make. If Nigeria is serious about its stated aim of becoming one of the world's twenty largest economies by 2020, how will it build on the gains of the 2000s to better leverage its human capital and tremendous entrepreneurial energy? It cannot rely solely on oil, either for jobs or for revenue, and analysts expect today's high nonoil growth of 8 percent to slow by mid-decade without a steady flow of new investment and enterprise.[66] The next decade could be very exciting in commercial terms, particularly as rising purchasing power among the middle class spurs double-digit growth in the goods and services sectors. Ideally, the government will tailor its climate change adaptation strategies to help grow and protect the sectors, value chains, regions, and populations best able to drive the country's future development.

Choose Governance Structures and Tools for Cooperation

Strong leadership, relationships, individual choices, and cooperation will decide much of how climate change and conflict play out together in Nigeria.

Strong leadership, relationships, individual choices, and cooperation will decide much of how climate change and conflict play out together in Nigeria. The solid engagement of the federal government is key to achieving best outcomes. Even if most work ends up being done privately, adaptation remains a suitable and necessary public policy issue, and not just because some measures—flood barriers, for instance—are public goods best supplied through joint action. What is needed is an honest and open debate about how to build a resilient society. With its complex federal structure, neopatrimonial leadership tendencies, low political accountability, and communications deficits, Nigeria will not easily enter such a debate. A few comments on what it needs to get started follow.

The Nigerian Response. The federal government has not done much on climate change thus far.[67] Nigeria's First National Communication on Climate Change came out in 2003, and President Olusegun Obasanjo set up a Special Climate Change Unit in the Ministry of Environment to manage the issue. The ministry's proposed 2011 budget shows climate change–related capital projects worth about $20 million. Officials also say a draft National Climate Change Policy document is in the offing. State governments have largely been unengaged, with the arguable exception of Lagos. What Abuja needs to work toward is at least the following:

- *A main oversight body, not housed in any federal ministry*. A central policy organ and knowledge center should help coordinate Nigeria's response to climate change. The crosscutting nature of the problem requires joint effort, and the prevailing state of Nigeria's political economy argues for a central actor to help leverage gains and keep patronage logic at bay. This federal body should have the statutory power and influence to coordinate planning and cooperation on climate change among all stakeholders and to devise a central Nigerian climate change policy. It should also serve as the country's main climate change knowledge center and manage ongoing research. Finally, the body should oversee donor and multilateral funding, as well as develop the necessary domestic funding mechanisms to get money to subnational actors. A bill to create a Nigerian Climate Change Commission has been stuck in the National Assembly since last year. It is a decent start, though as drafted, the commission's powers to focus resources and attention are uncertain, and the cumbersome twenty-four-person technical advisory committee the bill would create has no provision for conflict experts.
- *Increased capacity and roles for various sister agencies*. Nigeria has many public institutions that could contribute to the development of adaptation policy. These include the National Emergency Management Agency, the Nigerian Meteorological Agency, the National Environmental Standards and Regulations Enforcement Agency, the National Institute for Freshwater Fisheries Research, the National Water Resources Institute, Kaduna, and the National Center for Arid Zone Studies, Maiduguri. Most are underutilized and underdeveloped today. The main oversight body should also be responsible for coordinating their activities relating to policy and research.
- *Better information*. Nigeria needs a detailed assessment study of all existing data on potential climate change impacts and associated conflict risks. Then government should commission analyses of the potential effects of climate change on specific sectors, value chains, populations, and regions of high strategic importance or at high risk. At the same time, the main oversight body, together with outside stakeholders, should develop a multidisciplinary, participatory assessment process that first examines climatic shifts and their associated resource shortages, secondary impacts, and conflict risks, then assesses the feasibility and cost effectiveness of particular adaptation measures. This process should be scalable to any sector or area of the country, from households to the national level.

Recommendations from it should be based on multiple interlocking scenarios of climatic shift and future socioeconomic growth.

- *An implementation plan*. To date, action taken through the Special Climate Change Unit has been largely ad hoc and divorced from a bigger picture. Under the United Nations Framework Convention on Climate Change (UNFCCC), drawing up a National Adaptation Program of Action (NAPA) is the main first step for planning adaptation at the country level. A NAPA is a document containing detailed information on a country's potential climate change impacts, adaptation priorities, and preferred responses. Completed NAPAs are sent to the UN as a prerequisite for accessing multilateral climate change funds.

  Promises from the Ministry of Environment of a NAPA for Nigeria have proved empty so far. This is at once frustrating and good: while the ongoing delay raises questions about official commitment, the value of developing a NAPA before basic policy infrastructure and knowledge are in place is debatable. Many NAPAs from other countries have also neglected conflict risk as a factor in planning, a mistake Nigeria should not repeat.

International Assistance. Nigeria needs and deserves the help of more developed nations on climate change. Adaptation will cost. Good numbers for Nigeria do not exist yet, but differing models set worldwide adaptation costs at anywhere from $50 billion to $380 billion per year by 2030. Some key measures—coastline protection, for instance—can be especially pricey. As the major sources of emissions, the world's rich nations are also obligated, not least under the UNFCCC, to help countries like Nigeria. This is not a question of aid, and amounts should be budgeted over and above overseas development assistance.

So far, donors have not invested much, however. The DFID, the EU, and Canada have made small efforts, while the United States, Nigeria's largest donor, remains at large. This slow response is understandable. For years, mitigation has dominated the geopolitics of climate change, whereas donors may be better equipped to deliver on adaptation. Institutional knowledge can be an issue, and donor personnel may balk at engaging Nigeria in a fresh policy area. With its low aid dependence and foreign debt, big oil revenues, relative political stability, and prickly foreign policy, Abuja is not always easy to talk to. Still, an unstable, economically declining Nigeria is not in donor interests. The United States buys about a million barrels of Nigerian oil each day. In 2010 Nigeria was the fourth largest exporter of crude oil to the United States, and oil price watchers believed Niger Delta unrest alone tacked on $3 to $16 a barrel in 2008. Climate change–induced humanitarian crises in Nigeria could also trigger costly international obligations to act, and historically, Nigeria has also shouldered a lot of regional peacekeeping costs.[68] If its military had to withdraw from Africa's various war fronts to tend to climate change–related violence at home, the costs to the United States and other nations forced to step in could be large.

Climate change–induced humanitarian crises in Nigeria could also trigger costly international obligations to act.

Multilateral support for Nigeria on climate change has also been relatively small. Right now most multistate funding goes through the World Bank–administered Global Environmental Facility (GEF), which channels a relatively small part of total funds into several adaptation-related pools for developing countries. Pledges to the GEF are not being met, however, and Nigeria has perhaps not shown great seriousness about accessing funds.

The more developed world and its institutions have other things besides money Nigeria can draw on. Developed nations can offer much technical advice as the country sets its adaptation policy, although outside involvement should not change the deep stocktaking Nigeria needs into a series of boxes to check before funds can go out. Finally, developed nations should not heap further negative externalities on countries like Nigeria through their own responses to climate change. A 2008 Oxfam study found that higher demand for biofuel-related crops in rich countries hiked world food prices by 30 percent, stoked violence in more than thirty countries, pushed 30 million more people into poverty, and threatened

the livelihoods of nearly 100 million.[69] Countries like Nigeria face enough challenges from climate change without such perverse add-ons.

Acknowledgments

The author thanks Raymond Gilpin for his valuable editorial insights.

Notes

1. See, e.g., UN General Assembly, "Report of the Secretary-General: Climate Change and Its Potential Security Implications" (New York: United Nations, 2009). A 2007 International Alert report placed Nigeria on a list of forty-six countries, home to 2.7 billion people, where the effects of climate change interacting with economic, social, and political problems created a high risk of violence. International Alert, *A Climate of Conflict* (London: International Alert, 2007).
2. M. Boko et al., *Climate Change 2007: Impacts, Adaptation, and Vulnerability—Africa* (Cambridge: Cambridge University Press, 2007).
3. P. Odjugo, "An Analysis of Rainfall Pattern in Nigeria," *Global Journal of Environmental Science* 4, no. 2 (2005): 139–45.
4. See Federal Ministry of Environment, "Nigeria and Climate Change: Road to Cop15" (Abuja, Federal Ministry of Environment, 2009). Sea level rise, it should be noted, is difficult to predict, owing to methodological disputes over modeling assumptions, varying rates of ocean temperature rise and expansion, the behavior of the ice caps, and how much affected land sinks as it absorbs groundwater.
5. DFID/ERM, *Impact of Climate Change on Nigeria's Economy* (Abuja: DFID, 2009).
6. Figures cited in Federal Ministry of Environment, *National Policy on Desertification and Drought* (Abuja: Federal Ministry of Environment, 2008).
7. F. A. Onofeghara, "Nigerian Wetlands: An Overview," in *Nigeria Wetlands,* ed. T. V. I. Akpata and D. U. U. Okali (Port Harcourt, Nigeria: UNESCO/MAB, 1990).
8. The damage inflicted on Delta ecosystems by a half century of oil extraction is hideous, among the worst in the world. The best available estimates indicate that as many as 13 million barrels of crude have escaped into the environment—roughly equal to one Exxon Valdez spill per year. Nigerian Conservation Foundation et al., *Niger Delta Natural Resources Damage Assessment and Restoration Project, Phase I Scoping Report* (Abuja: Federal Ministry of Environment, 2006).
9. UN Food and Agriculture Organization. *Nigeria Water Profile.* New York: United Nations, 2009; Nigerian National Bureau of Statistics. *Social Statistics*. Abuja, 2009. The Federal Ministry of Environment estimates Nigerian water demand already chronically outstrips government supply by two to one. Federal Government of Nigeria, *First National Communication on Climate Change* (Abuja, 2003).
10. National Bureau of Statistics, *Social Statistics;* Federal Ministry of Water, Abuja, 2005 figures.
11. Federal Government of Nigeria, *First National Communication on Climate Change.*
12. P. Akpodiogaga et al., "Quantifying the Cost of Climate Change Impact in Nigeria: Emphasis on Wind and Rainstorms," *Journal of Human Ecology* 28, no. 2 (2009): 93–101. The study quantified only direct damage to homes, vehicles, and public infrastructure such as schools, markets, and power stations; secondary costs such as lost productivity and opportunity were not analyzed.
13. Onofeghara, "Nigerian Wetlands"; L. Awosika, "Impacts of Global Climate Change and Sea Level Rise on Coastal Resources and Energy Development in Nigeria" (DAMTECH Nigeria Ltd., 1995). An unknown number of wells have already been submerged, especially in the Forcados area of Delta state.
14. Author interviews, 2010–11. Currently the onshore fields account for 65 percent of Nigerian oil production.
15. Life expectancy averages forty-four years, every fifth child dies before his or her fifth birthday, and less than half the population drinks safe water. Progress on Millennium Development Goals pertaining to child mortality and maternal health has been decent, but delivery of public health services in many areas remains poor. United Nations Development Program. *Nigeria Human Development Report.* Abuja: UNDP, 2009.
16. Author interviews, 2010.
17. Author interview, National Emergency Management Agency (NEMA) official, 2010.
18. Ibid. Author interviews with civil society personnel, 2010.
19. D. Wheeler, "Quantifying Vulnerability to Climate Change: Implications for Adaptation Assistance" (Washington, DC: Center for Global Development, 2011).
20. U.S. State Department. *Nigeria: Human Rights Report.* Washington, DC: U.S. State Department, 2009.
21. Nigeria already imports more cereals and protein sources such as fish each year, forcing more Nigerians—50 percent of whom spend at least half their incomes on food already—to pay world food prices. The recent global food price hikes saw serious shortages, especially in the northeast.
22. One-third of Nigerians are still classified as chronically hungry under the Millennium Development Goals, and nearly a quarter of children younger than five years old are underweight. UNDP. *Nigeria Country Report: Millennium Development Goals.* Abuja, UNDP, 2010.
23. Author interviews, Nigerian agricultural experts and development economists, 2010.
24. M. Coe and J. A. Foley, "Human and Natural Impacts on the Water Resources of the Lake Chad Basin," *Journal of Geophysical Research* 106 (2001): 3349–56.
25. Nigerian Environmental Study/Action Team, "Facts on Climate Change in Nigeria No. 4: Repercussions for Agriculture, Food Security, Land Degradation, Forestry and Biodiversity" (Abuja: NEST, 2008).

26. E. Nkonya et al., "Increasing Agricultural Productivity and Profitability in Nigeria," International Food Policy Research Institute Brief No. 19 (Washington, DC: IFPRL, 2010).

27. These are 2010 federal government labor and productivity figures. The labor force grows at approximately 3 percent annually, yet the existing economy absorbs only 5 to 10 percent of the millions of new entrants.

28. V. Treichel, ed., *Putting Nigeria to Work* (Washington, DC: World Bank, 2010).

29. DFID/ERM, *Impact of Climate Change on Nigeria's Economy*.

30. Federal Government of Nigeria, *First National Communication on Climate Change*.

31. Human Rights Watch, "Criminal Politics," (New York: Human Rights Watch, 2007).

32. Author interview, unpublished figures collected by Nigerian expert on herder-farmer conflicts, 2011.

33. For an overview, see I. Salehyan, "From Climate Change to Conflict: No Consensus Yet," *Journal of Peace Research* 45, no. 3 (2008).

34. T. Homer-Dixon, "Terror in the Weather Forecast," *New York Times,* April 24, 2007.

35. For more discussion of the possible links between climate change and violence, see J. Lee, *Climate Change and Armed Conflict: Hot and Cold Wars* (New York: Routledge, 2009), and the many case studies available through American University's Climate Change and Armed Conflict Project, http://www1.american.edu/ted/ICE/climatechange/hotcoldwar.html.

36. See Paul Collier's work on civil war, or, for a contrasting perspective on Nigeria, see A. Langer and U. Ukiwo, "Horizontal Inequalities and Militancy: The Case of Nigeria's Niger Delta," in *Overcoming Persistent Poverty and Inequality: Essays in Honour of Frances Stewart,* ed. V. Fitzgerald, J. Heyer, and R. Thorp (Basingstoke, UK: Palgrave Macmillan, 2011).

37. Author interviews, 2009–10.

38. Today, several deepening cycles of violence are directly tied to the electoral cycle. See, e.g., C. Newsom, "Conflict in the Niger Delta: More Than a Local Affair," USIP Special Report (Washington, DC: U.S. Institute of Peace, 2011). In one survey, respondents identified "politics" as the number one cause of local conflict, and 74 percent thought competition between political parties "often or always led to violence." Afrobarometer, "Summary of Results, Nigeria 2008" (Abuja: Afrobarometer, 2008).

39. Author interview with expert on Nigerian herder-farmer conflicts, 2010.

40. Author interviews, 2010. Some reports say coastlines retreat up to 65 feet per year in densely settled, conflict-prone places like Escravos, Degema, or Brass. Author interviews, 2011.

41. See Human Rights Watch, "They Do Not Own This Place," (New York: Human Rights Watch, 2006).

42. Between 2007 and 2009, insecurity shut down nearly half of Nigeria's onshore oil fields, costing government perhaps $24 billion in the first eight months of 2008 alone. Government of Nigeria, *Report of the Technical Committee on the Niger Delta* (Abuja, 2008).

43. See International Crisis Group, "Northern Nigeria: Background to Conflict," Africa Report No. 168 (Brussels: International Crisis Group, 2010), http://www.crisisgroup.org/en/regions/africa/west-africa/nigeria/168-northern-nigeria-background-to-conflict.aspx.

44. Polls have also shown, for instance, that 90 percent of Nigerians think government, not communities, should be responsible for providing infrastructure, while 70 percent think government should maintain it. NOI-Gallup Polling, *Second and Third National Surveys,* 2007–08 (Abuja: NOI, 2007–08).

45. Today NEMA and the National Committee for Refugees coordinate assistance on an ad hoc basis, aided more or less by state governments and charities.

46. For a discussion of political accountability in Nigeria, see A. Gillies and A. Sayne, "More of the Same: Cash Transfers in the Niger Delta" (Washington, DC: Center for Global Development, 2011, forthcoming).

47. Author interviews, 2009–10.

48. Author interviews, 2010–11.

49. Sources claim, for instance, that freestanding ethnic militias are growing in number, sophistication, and firepower, especially in the northeast and "Middle Belt" areas. Various areas of the country are reportedly also seeing more of the kinds of organized criminal pursuits the Delta boasts. These include attacks on public infrastructure, bank robbery, sea piracy, trafficking in arms and drugs, and kidnapping. Author interviews, 2008–11; see also Canon S. Davis, *The Potential for Peace and Reconciliation in the Niger Delta* (Coventry, UK: Coventry Cathedral, 2009).

50. N. Gleditsch, R. Nordås, and I. Salehyan, "Climate Change and Conflict: The Migration Link," *Coping with Crisis Working Paper Series* (Oslo: Centre for the Study of Civil War, Peace Research Institute Oslo, 2007).

51. Nigeria is classified as a Non-Annex 1 nation by the UN Framework Convention on Climate Change. As such, it is not required to commit to reducing emissions.

52. See http://data.worldbank.org/indicator/EN.ATM.CO2E.PC.

53. See Nigerian National Petroleum Corp., Statistical Bulletin (Abuja: NNPC, 2009); Stakeholder Democracy Network, "Up in Smoke: Nigeria's Continued Reliance on Gas Flaring" (Port Harcourt, Nigeria: Stakeholder Democracy Network, 2009). Flaring makes up approximately 30 percent of Nigeria's total emissions.

54. In per capita terms, this is thirty times less than South Africa and ninety times less than the United States.

55. Nigeria may lose as much as 600,000 hectares of trees each year to firewood and logging. The 2009 figures from the UN FAO gave total forest area as 11,089 million hectares—only 12 percent of total land area. Other figures show a greater than 50 percent decrease in areas of undisturbed forest between 1976 and 1995. See Federal Ministry of Environment, "Nigeria and Climate Change."

56. In the Niger Delta, the governments of Rivers and Ondo states have announced plans to boost palm oil.

57. The federal government has announced a few projects, including hydroelectric power projects worth 3,000 megawatts in Mambila and Zungeru, a small Katsina wind energy project, and small off-grid rural solar projects in a handful of states.

58. The importance of making peacebuilding climate-proof should also be noted. For example, as part of a 2009 "amnesty" offered to Niger Delta militants, the federal government is offering ex-combatants job training. Yet so far no one has bothered to assess whether the careers "ex-militants" supposedly are being prepared for—farming, aquaculture, or forestry, for instance—are environmentally, economically, or socially sustainable.

An online edition of this and related reports can be found on our Web site (www.usip.org), together with additional information on the subject.

59. For example, Nigeria's food marketing trade operates through nationwide networks that, at their best, urge accommodation, compromise, and cooperation across social divides while promoting more efficient resource use. Some trade organizations and chambers of commerce likewise do a lot to resolve disputes. Author interviews, 2010. For a series of case studies from other countries, see International Alert, *Local Business, Local Peace: The Peacebuilding Potential of the Domestic Private Sector* (London: International Alert, 2006).
60. Stories abound of government projects left undone or delivered incompetently—gas turbines built too big to cross bridges, hospitals with no staff or medicines, solar panels pointed away from the sun. For this list, see Stakeholder Democracy Network, Newswire, September 2010, http://www.stakeholderdemocracy.org/uploads/SDN%20Publications/news%20and%20analysis/sdn_sept2010.pdf. One 2010 survey found 278 unfinished infrastructure projects in 120 Niger Delta communities, 248 of them commissioned by the government since 2000. Niger Delta Professionals for Development, "Citizens Report Card," January 2011, http://nidprodev.org/files/Summary%20Version%20of%20Citizen%20Report%20Card.pdf.
61. In the Delta, for instance, one estimate counted as many as "120 to 150 high risk and active violent conflicts in the key oil-producing states of Rivers, Delta, and Bayelsa." UNDP, "Situation Analysis and Opportunities for Engagement" (Abuja: UNDP, 2007).
62. Author interviews, 2009–10.
63. Food security is one example. Although local weather shifts have contributed to recent food price hikes in Nigeria, it is likely that increased biofuel production in developed countries, higher Asian demand, and protectionist trade policies are also having an impact.
64. Higher land use and food prices, not increased manpower, have accounted for most growth. Treichel, *Putting Nigeria to Work*.
65. S. Akpan, "Encouraging Youth's Involvement in Agricultural Production and Processing," International Food Policy Research Institute, Policy Note No. 29 (Washington, DC: IFPRI, 2010).
66. IMF, "Article IV Consultation: Nigeria" (Washington, DC: IMF, 2010). Oil contributes tens of thousands of jobs to the Nigerian economy at most, much of it short contract work. And while the country's petroleum reserves—currently 37 billion barrels—are vast, major production could end in four decades.
67. Under the Kyoto Protocol, Nigeria's obligations as a Non-Annex I country include producing four National Communications, four in-depth Review Summaries, one Progress Report, a National Adaptation Program of Action, and a Global Climate Observing System Report.
68. Officials claim national peacekeeping efforts in Liberia, Sierra Leone, Sudan, and other places have cost as much as $10 billion and the lives of two thousand Nigerian soldiers in recent years. Author interviews, 2010.
69. Oxfam, "Another Inconvenient Truth: How Biofuel Policies Are Deepening Poverty and Accelerating Climate Change," policy brief, June 6, 2008, http://www.oxfam.org/en/policy/another-inconvenient-truth.

United States Institute of Peace
2301 Constitution Ave., NW
Washington, DC 20037
www.usip.org