REPORT FROM AFRICA:

Population, Health, Environment, and Conflict

Sustained Development, Democracy, and Peace in Africa

WANGARI MAATHAI

When the Norwegian Nobel Committee honored me with the Nobel Peace Prize in 2004, it intended to send a new and historic message to the world: to rethink peace and security. It wanted to challenge the world to discover the close linkage between good governance, sustainable management of resources, and peace. In managing our resources, we need to realize that they are limited and need to be managed more sustainably, responsibly, and accountably.

Sustainable management of the resources is only possible if we practice good governance, which calls for respect for the rule of law, respect for human rights, a willingness to give space and a voice to the weak and the more vulnerable in our societies; that we respect the voice of the minority, even while accepting the decision of the majority, and respect diversity. Good governance seeks justice and equity for all irrespective of race, religion, gender, and any other parameters, which man uses to discriminate and exclude. Good governance is indeed inclusive and seeks participatory democracy.

We call for the strengthening of institutions, such as the United Nations and its many organs, to restrain strong nations so that they do not walk all over the weak ones. Security of nations at the global level is as important as security of individuals within the national boundaries. And for individuals, as well for the nations, if they are not secure, no one is secure. This is true whether the threat comes from nuclear power or an AK-47.

When we manage our resources sustainably and practice good governance we deliberately and consciously promote cultures of peace, which include the willingness to dialogue and make genuine efforts for healing and reconciliation, especially where there has been misunderstanding, loss of trust, and even conflict. Whenever we fail to nurture these three themes, conflict becomes inevitable.

I come from a continent that has known many conflicts for a long time. Many of them are glaringly due to bad governance, unwillingness to share resources more equitably, selfishness, and a failure to promote cultures of peace.

Wangari Muta Maathai was born in Nyeri, Kenya, in 1940, the daughter of farmers. The first woman in East and Central Africa to earn a doctoral degree, in 1977 she founded the Green Belt Movement, a broad-based, grassroots organization which has helped women's groups plant more than 30 million trees to conserve the environment and improve quality of life.

Maathai is internationally recognized for her persistent struggle for democracy, human rights, and environmental conservation. She and the Green Belt Movement have received numerous awards, most notably the 2004 Nobel Peace Prize, as well as the Legion d'Honneur, the Disney Conservation Fund Award, and the Goldman Environmental Prize. She has been named a member of UN Enivronment Programme's Global 500 Hall of Fame, *Time* magazine's 100 most influential people in the world, and *Forbes* magazine's 100 most powerful women in the world.

In 2005 Wangari Maathai was elected presiding officer of the Economic, Social and Cultural Council of the African Union, based in Addis Ababa, Ethiopia. She has also been appointed goodwill ambassador for the Congo Basin Forest Ecosystem. (Photo: © Martin Rowe)

Leaders fail to care enough for the ordinary citizens and preoccupy themselves with matters that concern them and let their people down.

We continue to have problems in the Darfur region of Sudan, Somalia, Ivory Coast, Democratic Republic of the Congo, Chad, and many other corners of the African continent. All of the conflicts can be traced to failure in governance and responsible and accountable management of resources, and the failure to cultivate cultures of peace, especially engaging in dialogue and reconciliation.

Indeed all over the world, this is often the root cause of conflicts. Inequities, both national and international, are largely responsible for poverty and all its manifestations. There is hardly any conflict in the world that is an exception. Below the thin layer of racial and ethnic chauvinism, religion, and politics, the real reason for many conflicts is the struggle for the access to and control of the limited resources on our planet.

A good number of African leaders have recognized the need for good governance in Africa. This is because, despite all the resources in Africa, development continues to lag behind due to lack of peace and sustainable management of resources. Corruption and mismanagement of resources frustrate development and exacerbate poverty. At the African Union leaders are encouraging each other to deliberately and consciously promote good governance and peace and give development a chance. Challenges are many and varied, but what is encouraging is the commitment demonstrated by leaders, now willing to shun conflict and violence through peaceful resolutions. More of them are willing to face the fact that no development will take place in a state of conflict and mismanagement of state affairs.

As part of this drive in Africa, I have been invited by the Heads of States in the Central African sub-region to be a goodwill ambassador for the Congo Forest Ecosystem. This is not only important to Africa but to the whole world, especially with respect to climate change. The forest is the second largest: only second to the Amazon forest. Both forests, and indeed other forests of the world, are very important, as they serve as major carbon sinks.

I have also been requested by the African Union to preside over the mobilization of the African Civil Society in order to form a forum, which will advise the Union on how to manage African affairs more justly and responsibly. We all know that weak civil societies are unable to hold their leaders responsible and accountable. Therefore, strengthening civil society would also strengthen the democratization process. A strong civil society can also be an important vehicle for delivery of services like health.

One of the difficult issues we face in sustainable development is consumerism, especially in the rich industrialized countries. In this case, technological advancement can assist with the campaign to reduce, reuse, and recycle resources (the 3Rs). Recently while visiting Japan, I learned of the wonderful concept of *mottainai*, which not only calls for the practicing of the 3Rs, but also teaches us to be grateful, to not waste, and to be appreciative. This old Buddhist teaching is in complete agreement with the concept of sustainability.

In the area of energy, use of hybrid cars contributes to the reduction of the consumption of fossil fuels. Countries that generate much waste must assume responsibility and take action against threats like climate change. The Green Belt Movement is partnering with some organizations by planting trees in our region to offset some carbon and contribute toward the reduction of greenhouse gases—for trees are symbols of peace and hope.

May peace prevail.

Note: This article is adapted from a speech at the Summit of Nobel Peace Laureates, Gwanju, South Korea, June 16, 2006.

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Madagascar Naturellement: Birth Control Is My Environmental Priority

PRESIDENT
MARC
RAVALOMANANA

Marc Ravalomanana became president of Madagascar in December 2002. He grew up in rural agricultural Imerikasina, went to school in Sweden, and returned home to make and sell homemade yogurt on the streets of Antananarivo. Aided by a World Bank loan, within several years he built TIKO, Madagascar's largest domestically owned private company and was later elected mayor of the capital city. (Photo: © David Hawxhurst, Woodrow Wilson Center)

At the recent marriage of my daughter, I altered the traditional wish of the father at Malagasy weddings, which is for the couple to have 14 children: seven sons and seven daughters. Instead, I wished the couple "to have a healthy life together and three children." I have also tried to change the way everyone in my country thinks about raising families because I have a strong personal commitment to balancing population growth with sustainable natural resources.

In my first four years as president, I have developed a far-reaching plan to free Madagascar from a cycle of poverty that harms the people and destroys the island's rich biodiversity. My dream, which I call "Madagascar Naturellement," is that we can build a strong economy, invest in our people, and maintain the nation's precious natural treasures. Family planning lies at the heart of all of these efforts. And here is how it all comes together.

My country's strengths outnumber its weaknesses and we believe in our ability to succeed. Potentially, we are a rich country. We have important natural resources, a favorable climate, strong cultural values, hard-working farmers, and opportunities in agriculture, livestock, fisheries, mining, and wood.

We also have a unique and rich biodiversity. To the outside world, my country is best known for its natural wonders. For its size, Madagascar contributes more to Earth's biodiversity than any other place. Eighty percent of our flora and fauna are unique to the island. We are best known for our lemurs. In fact, there are more than 70 varieties. But we boast other evolutionary oddities, as well: the tenrec, which is a miniature hedgehog-like animal; the fossa, which is a mongoose relative that looks like a cross between a puma and a dog; 223 out of 226 known species of frogs; more than half the world's chameleon species; neon-green day geckos; three times as many kinds of palm trees as mainland Africa; and forests of endemic spiny plants.

Yes, we do have one of the most valued ecosystems; but it is also one of the most threatened. Why has this occurred? In a word, poverty. Madagascar is among the world's poorest countries: of 17 million Malagasy people, 13 million live on less than $1 a day. In fact, the average income is 41 cents per day. More than 75 percent live in rural areas, barely living off the land that surrounds them, using whatever resources they can find.

This poverty costs my people, our country, and the world. Our traditional slash and burn method of agriculture is called *tavy* and it drives the Malagasy economy. We convert our tropical rainforests into rice fields, destroying plant and animal life and exhausting the soil, leaving behind nothing but scrub vegetation and alien grasses, eroded hillsides, and the constant threat of landslides.

When you understand the farmer's dire need, you can see why he practices tavy. As long as there is forest land freely available for clearing, he may as well use the land before his neighbor does.

Mandraitsara, a community family planning provider trained by the NGO Ny Tanintsika, displays the family planning methods she provides counseling on at her shop in the village of Ankarefobe, Madagascar (© 2005 Raharilaza/NY TANINTSIKA, courtesy of Photoshare).

The damage is easily visible in the degraded and fragmented forests of the east and the cactus scrub invasion of the spiny forests to the south. You can see it in our rivers that run red with the soil of the central highlands. Each year, about one-third of the country burns. We have already lost about 90 percent of our forest and each year we lose 1 percent of what is left. We can't afford to let the land go up in smoke and ashes. Our forests will become desert. Our biodiversity destroyed. And my people will starve.

When I ask people in the countryside what they need, they always say, in this order: roads, schools, and health centers. Health is paramount to my goals and their needs. Agriculture is the basis for most of the rural economy, but for our own people to productively work in the fields, they must be healthy. Women work hard in this rural economy and time away from the fields to have babies, to take care of sick family members, or to transport them to distant clinics is income lost. For the rural poor, time and money spent on health problems jeopardize the already tenuous levels of family and community food security.

The rapid growth of our population contributes to poor health and increased levels of poverty. Madagascar is not only one of the poorest populations in the world, it is also one of the fastest growing. Our rural population has nearly doubled since 1980 to 13.4 million last year (2005). Studies conducted in selected rural areas show that as our population increases—actual numbers of people and rates of growth—the forest cover decreases.

I think you now see, as I do, how the causes of poverty are related. One way to attack these problems is family planning. We have to help couples have the size family they want and can provide for. In rural areas of the country, a woman will have five or six children in her lifetime. I see families struggling to feed 9-10 children. I see their children—my country's future—weak from malnutrition and disease. I see farmers destroying their land in their effort to provide for their children. These sights hurt my heart.

I know we must help these families. Nearly half our population is under the age of 15 and now entering their reproductive years. There will be severe health risks for these children: early-age pregnancy, births too close together, and high incidence of chronic maternal poor health. Out of every 100,000 women, 500 die

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from pregnancy-related causes each year; in the United States, only eight die. Too-frequent births mean that children grow up without enough to eat and in poor health. In my country, 75 out of every 1,000 infants die in their first year of life; in your country, the figure is 6.43. Family planning could prevent 25 percent of our infant deaths; safe water, childhood injections, and other health interventions could prevent most of the remaining deaths.

Only if we focus our efforts where the poor people are—in rural communities—and on what their problems are will we be able to move from a subsistence to a market economy. Therefore, we have integrated programs to reach more people with new ideas. Such programs acknowledge population increases. All of what we do in Madagascar Naturellement blends programming from our Poverty Reduction Strategic Plan, the Politique Generale de l'Etat 2005, and the Madagascar Action Plan.

I asked the Ministry of Health to change its name to the Ministry of Health and Family Planning in 2004, making Madagascar one of the few nations where family planning is so explicitly recognized as a key health intervention. The ministry hosted a national family planning conference and wrote a national strategy that has already achieved some impressive results. Malagasies now have six contraceptive methods to choose from instead of four. Contraceptives are on the country's list of essential drugs, and we have welcomed private companies to enter the distribution system. We have adopted innovative programs integrating family planning and environmental activities. We have created broad action plans for youth and adolescent health, safe motherhood, and emergency obstetric care. In only a few years, the average number of children per family has decreased from 6.0 to 5.2 children per woman, one of the lowest rates among surveyed countries in Africa. Use of modern family planning methods has risen from 5 percent in 1992 to 18 percent, with rates even higher for urban women. This has occurred in a nation that has traditionally emphasized high birth rates—"a marriage blessed with many children." Having children is a good thing, but having information on when to have them is even better.

I announced a new environmental policy at the 2003 Durban World Parks Congress. There, I pledged to increase by three times—from 1.6 million hectares to 6 million—over five years the amount of land under protected-area status in this "biodiversity hotspot." I further elaborated on this in 2004 with Madagascar Naturellement, which underscores that our biodiversity is critical to the country's future economic growth and important to our national economic growth strategy.

To expedite economic growth, we launched a rapid results initiative with technical support from Harvard University advisers. And we got some other help from the United States. In 2005, the United States and Madagascar signed the first-ever Millennium Challenge Account compact. The Millennium Challenge Account is an aid initiative proposed by President Bush in 2002 to reduce poverty in some of the poorest countries in the world. Over four years, the United States will contribute $110 million, roughly doubling the amount of development-related assistance the United States gives Madagascar each year. We are proud that Madagascar is the first country to sign the compact, and we are honored to be trusted by the U.S. government, Congress, and the American people. We believe that the globalization of

A girl in rural Madagascar (Courtesy of USAID).

economies must be urgently followed by a globalization of responsibilities. Our people need water taps more than television sets.

Our success depends on crucial partnerships and strong national support. We have cultivated valuable partnerships with the U.S. Agency for International Development, the UN Population Fund, and UNICEF to improve the use of modern contraceptives so that women are able to space their children for better health. We have also strengthened ties between our government, the private sector, many technical health partners and donors, and the environmental and agricultural sectors. But our success depends on what we do at the community level.

We have introduced small, do-able actions through which mothers, fathers, and children can improve their own behavior and their own health. With help from the U.S. Agency for International Development, we created what we call "champion communities" that empower local citizens to improve health standards and food security as they protect the environment. Village volunteers teach their neighbors about family planning, vaccines, hygiene and habitat, malaria prevention, nutritious cooking, and treatment of their drinking water. Committees also address environmental degradation by focusing on the use of improved and intensive rice cultivation and on reforestation. We distribute educational materials that show how all of these needs are linked.

There is much more to be done but we are on the right road to better health and well-being and, at the same time, protecting the natural resources that God has entrusted to us. My government and I will not rest until the major cause of death is old age. This is the Malagasy dream. This is our vision, Madagascar, naturally.

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Minerals, Forests, and Violent Conflict in the Democratic Republic of the Congo

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The Democratic Republic of the Congo (DRC) is emerging from a bloody war that has claimed the lives of nearly 4 million people, the majority of them in the eastern part of the country. In the absence of a strong state, the raging civil wars allowed the rebels, neighboring countries (Burundi, Rwanda, and Uganda), and international players to plunder the country's unparalleled endowment of valuable minerals, wildlife, and timber. In its investigations, the United Nations (2001) found that the violence in the DRC was largely supported by the funds the players gained by looting and exploiting natural resources, mostly minerals in areas under their control—confiscation and extraction of resources made the war, the expert panel reported, "a very lucrative business" (p. 6).

Despite this great natural resource wealth, the people of the DRC suffer great poverty: More than 75 percent live on less than a dollar a day and lack access to drinking water, and the infant mortality rate is one of the highest in the world (OECD & ABD, 2006). In this article, I propose two intertwined frameworks that help explain the paradox of a rich country with poor people. One, throughout its history, different natural resources in the DRC have been deemed "strategic" by the international markets. Two, Congolese institutions have been unable to protect the country's resources due to corruption, weak governance, and low capacity. Thus, natural resources are vulnerable to exploitation and violent competition when they are found in abundance in a particular location.

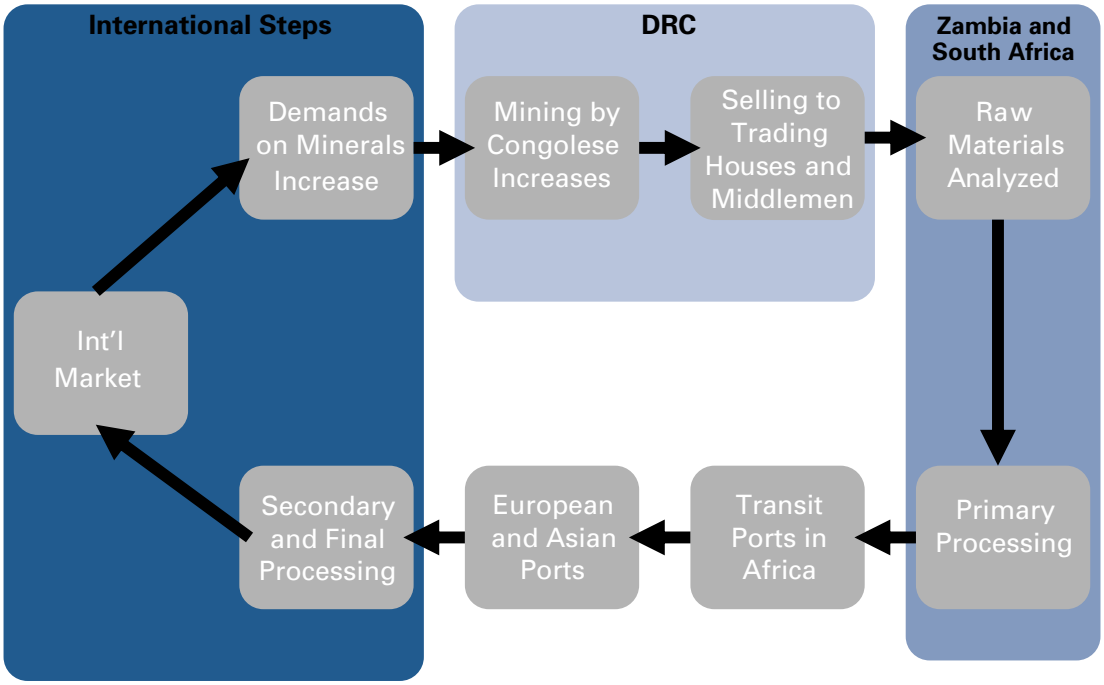
Some conflicts cannot be fully explained or properly addressed if environmental factors—especially those related to access and control of some strategic natural resources—are not integrated in the overall causal analysis. Failure to integrate these crucial dimensions leads to incomplete conflict resolution; patterns of violence are then more likely to return after peace accords have been implemented.

The current fragile peace, 2006 presidential and parliamentary elections, and subsequent 2007 local elections have paved the way for a new governance system in this war-torn country. But peace will not be sustainable without reconstructing the systems that govern the country's natural resources. Efforts by the World Bank and the U.S. Agency for International Development (USAID) to establish codes of conduct for forest management and mining are steps in the right direction but much work remains to be done.

"Strategic" Natural Resources: Technology and Tragedy in the History of the DRC

Technological advancements are linked to tragedies in the DRC's history. A look at the country's conflict timeline reveals a sad coincidence, a deadly game of ping-pong: An international technological discovery utilizing critical

Figure 1: The Mining Cycle



Source: Adapted from Global Witness (2006).

mineral inputs leads to violence and human losses in the DRC. A vicious cycle of mineral extraction drives competition, promotes exploitation, degrades the environment, diminishes resources, and drives more competition (see Figure 1). The more demand grows, the higher and faster the cycle, and the larger the number of victims.

In the latter half of the 19th century, following the discovery of rubber, 10 million Congolese were subjected to murder, mutilation, torture, deportations, and forced labor by rubber hunters operating on behalf of Belgium's King Leopold II, who then owned the DRC (Hochschild, 1999). After the DRC became a Belgian colony in 1908, the colonial overlords continued to exploit natural resources including copper, gold, cassiterite, wildlife, and timber. In particular, the massive exploitation of minerals sustained Belgian imperial ambitions, strengthened the colonial system, and provided a model for the subsequent autocratic regime of Mobutu Sese Seko. Belgium's desire to protect its stake in the Congo prompted the assassination of nationalist Patrice Lumumba and its support for Mobutu and secessionist Moise Tshombe of the southern Katanga Province, home to immense reserves of cobalt, copper, manganese, zinc, and uranium.

DRC minerals have played numerous strategic roles in world politics. For example, uranium from the DRC was shipped to the United States for the Manhattan Project, and thus partly fueled the bombs dropped on Hiroshima and Nagasaki in 1945. State-owned Gécamines, the source of the uranium, sustained Mobutu's kleptomaniac regime.

Today, the DRC is still awash in valuable, strategic resources. Copper, cobalt, diamond, columbo-tantalite (coltan), and gold mines flourish in the eastern and southern regions (see map). The Congo Basin forest, most of which is in the DRC, is the second-largest area of dense tropical rainforest in the world, containing one-quarter of the world's remaining tropical forests, as well as a spectacular array of biodiversity—10,000 species of plants, 1,000 species of birds, and 400 species of mammals, many of

Minerals and forest products, instead of being engines of growth, development, and well-being, have largely been to blame for most of the past and current misfortunes visited on the Congolese people.

which exist nowhere else on Earth (USAID, 2005). However, the DRC's forests are threatened by plunder and mismanagement: Logging for timber and fuelwood, clearing forests for agriculture, poaching wildlife for bushmeat or the endangered species trade, and mining are degrading the forest at the rate of 2 million acres every year (USAID, 2005).

Technological developments and the demands of international markets continue to determine the patterns of resource exploitation and conflict. The spike in the price of coltan, which is used in consumer electronics such as cell phones, kicked off a mining rush in 2000 that inflicted hefty environmental damage and supported the various armies fighting in the civil war (Global Witness, 2005). However, the worldwide economic slump in 2001 drove down demand for consumer electronics and with it, the price of coltan. Similarly, demand for cassiterite (tin ore)—which is found in the same areas as coltan, and is traded by the same networks—recently surged due to laws in Japan and Western Europe that require electronic circuit boards to use tin instead of lead (Global Witness, 2005).

Gécamines' holdings in the copper belt running through the DRC's Katanga Province and neighboring Zambia contain the world's biggest concentrations of cobalt and copper metal (Mbendi Information for Africa, 2004). Demand for cobalt, of which the copper belt holds 34 percent of the world's reserves, has risen in the last few years due to its use in rechargeable batteries for mobile phones (Global Witness, 2006). The belt also contains vast stores of copper—10 percent of the world's reserves—and production is predicted to soar to more than 100,000 tons after falling to virtually zero in the early 1990s (Global Witness, 2006). Diamonds from the DRC are worth an estimated US$400 million in foreign exchange each year (U.S. General Accounting Office, 2002).

Institutional Weakness: Corruption and Predation

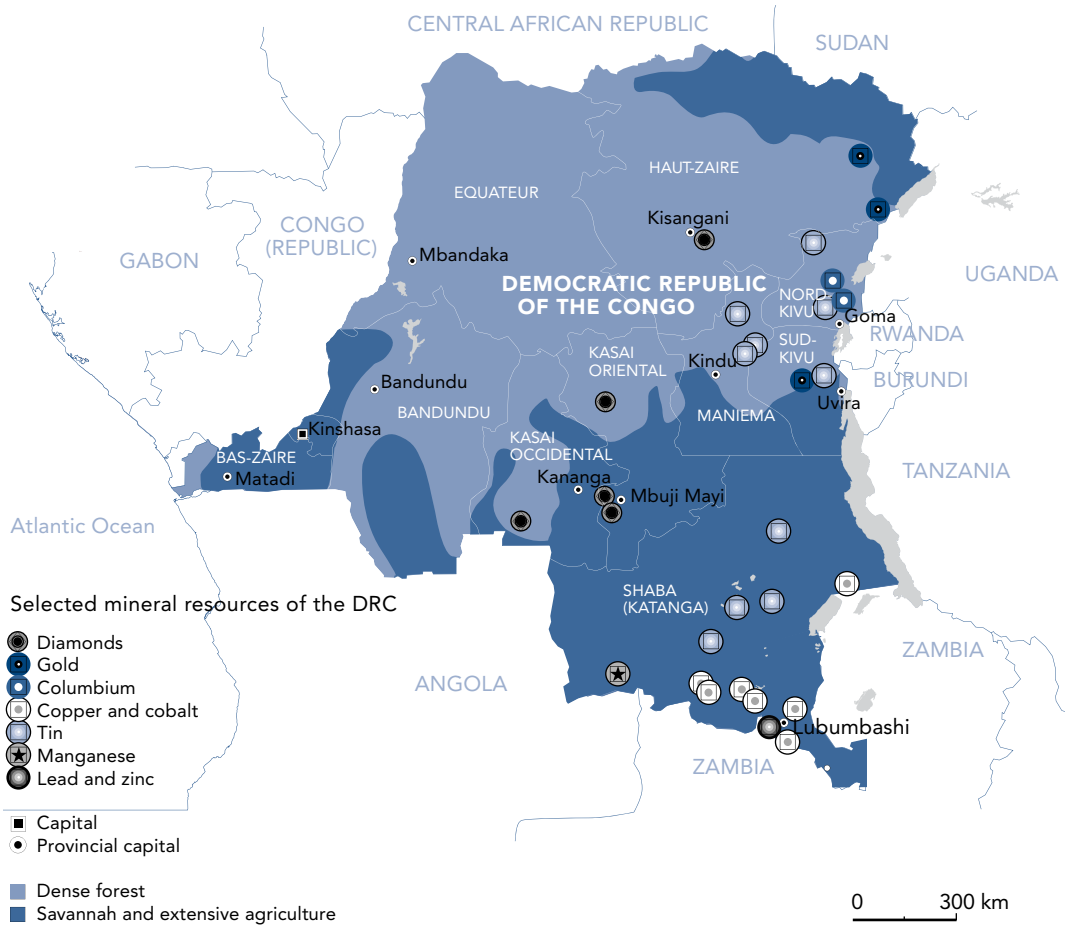
With so much wealth, why are the people of the DRC still so poor? Between 1990 and 2000, the country experienced severe inflation and falling production in manufacturing and agriculture. As a result, food prices spiked, the banking system collapsed, the deficit skyrocketed, and investors fled to more stable nations. Individual measures of well-being also declined—GDP per capita fell from US$240 to US$85, while human rights abuses escalated, and life expectancy fell (Bernardin & Cinyabuguma, 2004). Agricultural clearing, logging for fuel and construction, poaching, and the diversion of streams for mining all contributed to the country's flailing economy. Yet they are all evidence of a larger problem: the government's weak hold on the resource markets.

These repetitive crises are the result not only of international powers discussed above but also of a systematic structural pathology characterized by the inability of state institutions and leaders to mediate the internal and external competing demands on the country. The cyclical explosions of violence and destruction of the basic infrastructure and lack of service delivery are the fruits of inadequate state structures. The failure to meet people's basic needs creates frustrations. And these frustrations have been fertile ground for violence.

These weak state structures and institutions spring from poor decision-making processes, including flawed electoral systems, unconstitutional seizures of power, favoritism, and corruption. Leaders emerging from these undemocratic procedures are less accountable to the people than they are to those who appointed them. The less inclusive the processes, the more likely they will lead to less legitimate leaders and unrepresentative institutions. In the DRC, this lack of legitimacy is accompanied by repression and violence, further distancing people from their predatory leaders.

Relationships between communities in the DRC are embedded in a history characterized by denigration and internalized superiority. Nepotism, tribalism, and favoritism were erected in place of a governance system. Power remained in the leaders' hands, doled out to their cronies and members of their tribe. Consequently, public resources were

Minerals and Forests of the DRC



Source: Adapted from Philippe Rekacewicz, *Le Monde diplomatique,* Paris, and Environment and Security Institute, The Hague, January 2003

concentrated in the hands of a few to the detriment of the rest of the population.

National and external forces took advantage of the state's structural incapacity to enforce existing laws and to protect and control the resources of the country. This predation, further exacerbated by endemic corruption, primarily targeted the mineral and forest sectors. These natural resources were easily accessible and available, thus attracting organized and unorganized local and international players—including rebel groups backed by neighboring countries—who often used violence to capture these resources for thirsty international markets.

The DRC Today: A Fragile Peace Under Fire

In 1999, the Lusaka Peace Agreement established a roadmap for the return of normal governing institutions in the DRC. The agreement called for a ceasefire, withdrawal of all foreign troops, the disarmament and repatriation of "negative forces," and an inter-Congolese dialogue to develop a new political system. After a few subsequent years of disruption, all parties signed the Comprehensive Peace Agreement in 2003, creating a governance structure with a parliament, a senate,

one president, and four vice presidents representing each of the rebel movements, unarmed opposition parties, and civil society groups. In the July 2006 elections, none of the 33 presidential candidates received the absolute majority. After a run-off in October 2006, interim President Joseph Kabila was elected to top office, and the remaining new institutions were formally established.

The Lusaka Peace Agreement and subsequent accords between belligerents are the political response to the DRC's prevailing legitimacy crisis. The current electoral process is supposed to bring an end to the confusion that has reigned since 1996 and has led to most of the deaths and destruction in Congo.

But despite these hopeful developments, Congolese are still living in fear. The mineral-rich regions in the eastern DRC are still plagued by violence and insecurity. The prevalence of violence is highest in areas considered to be rich in coltan and cassiterite (the Kivu provinces), gold (Kivu provinces and Province Orientale), and diamonds (Province Orientale). For example, fighting continues around key mining towns in North Kivu between pro-Rwandan groups, the national army, and militias; and in South Kivu, national army soldiers and Rwandan Hutu rebels seek to control mines and their revenues (Global Witness, 2005). The foreign rebels and militia groups still operating in eastern DRC remain motivated by the money to be gained from exploiting natural resources.

Some communities in the eastern and central parts of the country, unhappy with the results of elections, are rumored to be considering using violence to resume their claim for more participation. Many others fear losing their grip on the natural resources they are exploiting as new players come on the political scene. These concerns are well-founded since most of the rebels' arsenals are still intact, due to the slow, partial, and disorganized disarmament and demobilization process.

Natural resources may again surface as a powerful incentive for organized violence in the eastern DRC. Minerals and forests may once again become engines of chaos. The control and establishment of sound management systems of these two sectors of the Congolese economy will not only be essential to preventing future conflicts but also vital for the economic recovery of the country.

Institutional Rebuilding: The Mining and Forest Codes

The World Bank Group, USAID, and the Congolese government have tackled the task of rebuilding institutions that will guarantee effective management of the mining and forest sectors. To be most effective, these instruments should be in accord with existing international frameworks, as well as environmentally sound. In addition, these new arrangements must take into consideration the needs and aspirations of the communities living around these resources via a participatory decision-making process.

With the support of the World Bank Group, the government of Kinshasa developed a Mining Code and a Forest Code, which were well received by international investors.[1] The existence of these new codes, along with rising demand for minerals, has revived interest in investing in the DRC. The mining and forest sectors are the two pillars upon which the country's economic recovery will be based. To this end, the World Bank committed US$1.83 billion in loans and grants from 2001-2005 to encourage stability and provide capacity for the government to provide basic services (OECD & ABD, 2006).

In 2002, USAID established a regional framework known as the Congo Basin Forest Partnership, which was launched by Colin Powell, then U.S. Secretary of State, at the Summit Institute for Sustainable Development in Johannesburg, South Africa.[2] The partnership has led to the cooperation and collaboration of six countries—Cameroon, Central Africa Republic, Congo-Brazzaville, the DRC, Gabon, and Chad—in the responsible and environmentally friendly management of the forests. This regional framework seeks to stem the loss of the forest, which is currently disappearing at the rate

of 2 million acres per year under pressure from logging and farming, as well as the increased demand for bushmeat (USAID, 2005).

However, these initiatives are not without difficulty. The Mining Code "strongly favors private investors," as does the World Bank's approach to restructuring the bankrupt Gécamines, most of whose assets were hurriedly sold to private investors (Global Witness, 2006, p. 35). Global Witness also claims that government interference and delays in the restructuring program have undercut implementation of World Bank programs.

Whereas government representatives recognize that the Mining Code is a good attempt to harmonize laws regulating the mining sector and end the prevailing chaos, implementation faces important challenges due to the Mining Ministry's lack of capacity for follow-up; loopholes regarding artisanal miners, especially the identification and allocation of concessions; and unabated corruption of government officials. In addition, Global Witness (2006) reports that international investors are ignoring the conditions of the Mining Code for the export of raw minerals, leading to huge loss of returns for the government.

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Recommendations

International bodies like the United Nations, the African Union, and the European Union should help the DRC bolster its environmental security, by encouraging and supporting the protection and development of World Heritage sites and forests in the country, as well as the development of a regional ecotourism infrastructure that includes Rwanda and Uganda. These international bodies, as well as the World Bank and the International Monetary Fund (IMF), should also continue to support the Mining and Forest Codes.

The World Bank and the IMF should refocus capacity-building efforts in the mineral and forestry sectors at the national (ministerial) and local levels, and encourage the creation of a special parliamentary commission on mines and forests management. Second, the international financial institutions should also organize an international conference for corporations interested in mining and forestry in the DRC. The conference should seek to establish ways to assess progress on the Mining and Forest Codes; set verifiable targets for economic development in the country; establish a social program for local communities; and set up regular mechanisms for assessing progress on these commitments.

The DRC's new parliament should discuss the results of the investigation by the Lutundula Commission into mining and other business contracts that rebels and government authorities signed during the war, which found that many contracts are either illegal or have limited development value and should be terminated or renegotiated. The parliament should appoint a commission to oversee the implementation of their decisions. The government should also reappoint the drafters of the Mining and Forests Codes and task them to include clauses organizing the artisanal sector, as well as mechanisms for implementation. The World Bank and IMF can assist the DRC government in designing these mechanisms, and help keep the public informed about their progress. Finally, the DRC government should implement and enforce anti-corruption laws by creating a special inter-parliamentary commission and anti-corruption unit, assisted by the international

A group of ex-combatants who have been trained and employed by local NGOs to construct roads in the region of Ituri, Democratic Republic of the Congo (© 2006 Wendy MacNaughton, courtesy of Photoshare).

financial institutions, NGOs, and other members of civil society

International civil society and faith-based groups can help the DRC by maintaining pressure on all the actors to make and keep long-term commitments, and respect international and national instruments. Civil society can also support capacity building at the provincial and local levels, especially for efforts to address corruption, develop and track budgets, improve tax collection, and promote environmental sustainability.

The United States, too, has a particular role to play, as it has a tangible interest in a stable DRC, not only as part of the overall fight against terrorism but also as a potential partner for lucrative joint ventures, particularly given Chinese and Indian interest in the market.

The United States should expand its Tripartite Plus process—a series of talks among Rwanda, Burundi, the DRC, and Uganda aimed at improving security in the region—to include a leadership training program and efforts to harmonize military cooperation in the Great Lakes Region of Africa. The United States should also devote more resources to the Central African Regional Program for the Environment (CARPE), a USAID initiative aimed at promoting sustainable natural resource management in the Congo basin.[3] Finally, the U.S. government should hold regular consultations with U.S. corporations active in the DRC.

Conclusion

From the slave trade to King Leopold II, Mobutu, and the civil war, violent conflict in the DRC, as in many other parts of Africa, has been closely linked to the predatory exploitation of natural resources. These resources have played a lethal role in the lives of the Congolese people. Minerals and forest products, instead of being engines of growth, development, and well-being, have largely been to blame for most of the past and current misfortunes visited on the Congolese people. The international markets for these products continue to grow, and international scarcity drives the exploitation of the DRC's unprotected abundance. Without the development of stable institutions, legitimate governance structures, and enforcement of regulations aimed at controlling natural resources, the country's forests and minerals will once again be prey for deadly predators, and the people of the DRC will be doomed to repeat their tragic cycle.[4]

Notes

1. The Mining Code is available online (in English) at http://www.miningcongo.cd/codeminier/codeminier_eng.pdf and the Forest Code is available online (in French) at http://www.rainforestfoundationuk.org/files/forest%20loi011_2002[1].pdf

2. For more information on the Congo Basin Forest Partnership, see http://www.cbfp.org/en/index.htm and http://www.usaid.gov/locations/sub-saharan_africa/initiatives/cbfp.html

3. For more information on CARPE, see http://carpe.umd.edu/

4. Meaghan Parker and Alison Williams of the Woodrow Wilson Center contributed to this article.

References

Akitoby, Bernardin, & Matthias Cinyabuguma. (2004, July). *Sources of growth in the Democratic Republic of the Congo: A cointegration approach* (International Monetary Fund [IMF] Working Paper). Available online at http://www.imf.org/external/pubs/ft/wp/2004/wp04114.pdf

Clément, Jean A.P. (2004). *Postconflict economics in sub-Saharan Africa: Lessons from the Democratic Republic of the Congo.* Washington, DC: IMF.

Congo Basin Forest Partnership (CBFP). (2006). *The forests of the Congo basin: State of the forest 2006.* CBFP. Available online at http://www.cbfp.org/en/THE_FORESTS_OF_THE_CONGO_BASIN_State_of_the_Forest_2006.pdf

Global Witness. (2005, June.) *Under-mining peace: Tin - The explosive trade in cassiterite in Eastern DRC.* Washington, DC: Global Witness.

Global Witness. (2006, July). *Digging in corruption: Fraud, abuse and exploitation in Katanga's copper and cobalt mines.* Washington, DC: Global Witness. Available online at http://www.globalpolicy.org/security/issues/congo/2006/07digging.pdf

Hochschild, Adam. (1999). *King Leopold's ghost: A story of greed, terror, and heroism in Colonial Africa.* New York: Mariner Books.

Mbendi Information for Africa. (2004, November 17). *Democratic Republic of the Congo-Mining: Copper and cobalt mining.* Available online at http://www.mbendi.co.za/indy/ming/nkcb/af/zr/p0005.htm

Organisation for Economic Co-operation and Development (OECD) & African Development Bank (ABD). (2006, May). "Democratic Republic of Congo." In *African environmental outlook, 2005-2006* (pp. 215-227). OECD & ABD. Available online at http://www.oecd.org/dataoecd/13/8/36746740.pdf

United Nations. (2001, April 12). *Report of the United Nations expert panel on the illegal exploitation of natural resources and other forms of wealth of the Democratic Republic of the Congo* (S/2001/357). New York: United Nations. Available online at http://www.globalpolicy.org/security/natres/diamonds/2001/0412report.pdf

U.S. Agency for International Development (USAID). (2005). *Congo Basin Forest Partnership.* Available online at http://www.usaid.gov/locations/sub-saharan_africa/initiatives/cbfp.html

U.S. General Accounting Office (GAO). (2002, June). *International trade: Critical issues remain in deterring conflict diamond trade.* Washington, DC: GAO.

Population, Migration, and Water Conflicts in the Pangani River Basin, Tanzania

MILLINE J. MBONILE

Although essential for human survival, water is inherently inequitable, as it is rarely evenly distributed among populations. Local users compete to obtain their share, which can intensify existing tensions and sometimes lead to violence where the supply of water does not meet demand (Gleick, 2006; Huggins, 2000). Water availability is one of the major constraints on economic development, particularly for developing countries like Tanzania, because lack of water limits food production and economic activities such as industry and commerce (Madulu & Zaba, 1998).

Many conditions may trigger conflicts, including jurisdictional ambiguities, miscommunication, and competition between sectors and users. In this article, I describe how population growth and migration in Tanzania's Pangani River basin—arguably the most water-stressed basin in the country—have intensified local water conflicts.[1] Resolving these conflicts requires understanding the socio-cultural context of the local communities and increasing stakeholder involvement in water management.

For my case study, I selected about 10 percent of the households in every village in the study area (see map) with the help of village leaders, and administered structured questionnaires to the heads of households. I sampled more villages in the highlands because they hold more of the population than the lowlands.

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The Pangani Basin

The Pangani River basin drains a large area in the northeastern part of the country along the border with Kenya, extending from Mount Meru and Mount Kilimanjaro down through the Pare and Usambara ranges. The major sources of water in the basin, which has a total catchment area of about 42,000 sq. km, are endangered by environmental degradation, climate change, and increased use (IUCN, 2003). Several studies show that the Pangani basin is already water-stressed—the river's flow has decreased dramatically in recent years—and water demand is expected to double by 2015 (see, e.g., IUCN, 2003).

The basin's water originates largely from rain falling on the mountains of Meru, Kilimanjaro, and Pare, and partly from snow melting from Kibo Peak (Mt. Kilimanjaro). The lowlands have reserves of underground water and springs, which are recharged by rain from the mountains. The climate of the Pangani basin varies widely by location and altitude. The relatively flat lowlands have an average annual rainfall of less than 500 mm, while the slopes of Mounts Kilimanjaro and Meru have an average annual rainfall exceeding 2,000 mm per year. More than 50 percent of the basin receives an average annual rainfall of only 500-600 mm; without the Pangani River the area would be semi-arid (Japanese International Corporation Agency [JICA], 1988).

Population and Migration in the Pangani River Basin

Population Growth

The population of both rural and urban areas of the Pangani River basin—currently home to 3.7 million inhabitants—is rapidly growing (IUCN, 2003). In the first half of the 21st century, the population is predicted to double every 20 years in rural areas and every 10 years in urban areas (University of Dar es Salaam & United Nations, 1993). Ninety percent of the population lives in the highlands, leading to a population density of up to 300 people per sq. km, compared to 65 people per sq. km in the lowlands (IUCN, 2003). This rapid population growth and high population density could help generate conflicts over natural resources as scarcity grows (Mbonile, 1999a).

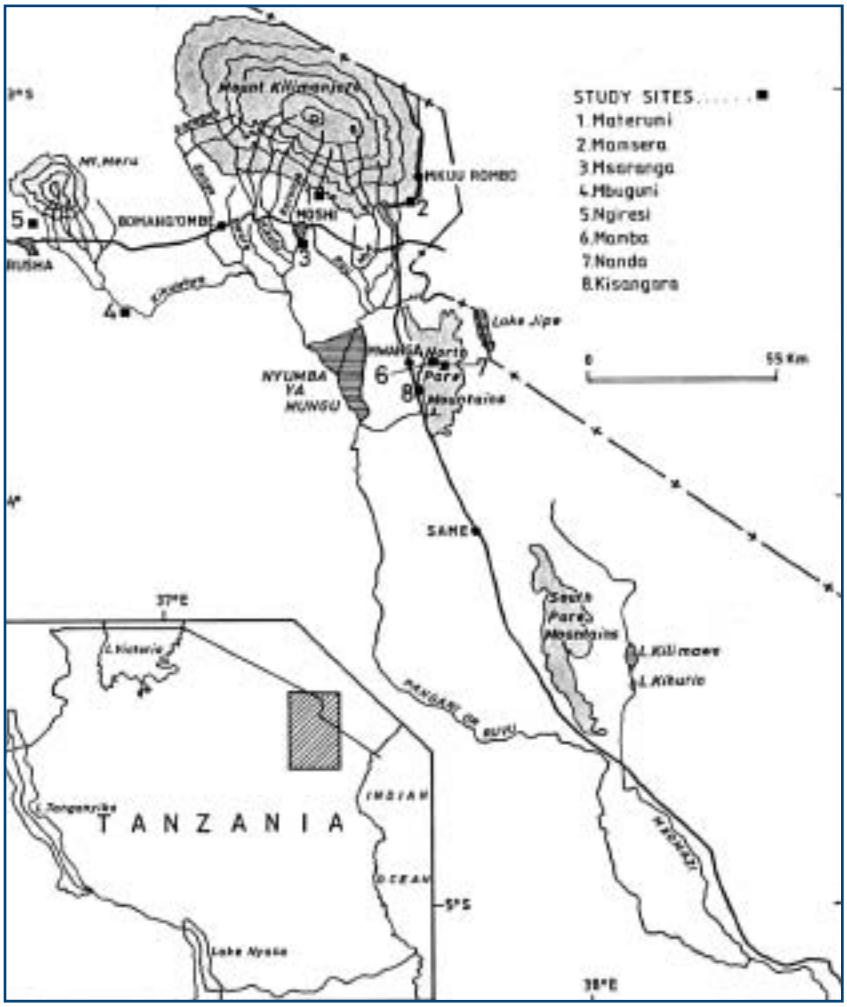
Displacement and Mobility

The history of the Pangani basin is marked by the continuous marginalization of the indigenous population by both internal and external migrants. Despite widespread resistance from the indigenous population, during the colonial period land was commandeered for large-scale plantations of wheat, coffee, sugar cane, and sisal, and for resettling World War II veterans (Spear, 1996). This massive settlement led to one of the largest population displacements in Tanzania. Agro-pastoralists and herders forced to move from the better-watered Ngare-Nyuki area migrated to more marginal lands occupied by pastoralists like the Maasai.

After Tanzania's independence in 1964, the establishment of national parks and game reserves like Tarangire, Kilimanjaro, Arusha, and Mkomazi took land from both agro-pastoralists and pastoralists, leading to massive displacement and migration. Large tracts of land were also appropriated for the Kilimanjaro International Airport and more large-scale wheat farms in West Kilimanjaro (Campbell, 1999).

The population at the middle altitudes (2,500-3,000 meters above sea level) traditionally migrated to the higher altitudes (3,500-4,000 meters) to grow perennial food crops

Location of the Study Area in the Pangani River Basin



Source: Mbonile (2005).

such as bananas and cash crops like coffee (Kimambo, 1996). More recently, as the population has grown and land in the highlands has deteriorated, people from the core middle altitudes instead colonized marginal agricultural land in the basin lowlands, which had previously been dominated by pastoralists (Maro, 1975; Maddox et al., 1996; Mbonile, 1999b). In addition, migrants moved from the highlands to more remote lowlands, escaping from drought and famine, or seeking more space for settlement (Gould, 1992).

In-migration and Urbanization

Most migrants from outside the basin come from neighboring parts of the country. New

developments within the basin—such as the Lower Moshi irrigation scheme, new towns, and tanzanite mines—have attracted migrants from more distant regions. The development of Kilimanjaro International Airport and the increasing urbanization of regional headquarters like Arusha and Moshi have attracted in-migrants seeking access to water, schools, and health services. Water consumption in urban areas has grown more than 500 times since the first installations were built in the 1950s, and the number of connections has increased more than 300 times (JICA, 1988; Kironde & Ngware, 2000).

Large-scale migrant farmers from other parts of the country, motivated by the cultivation of new cash crops like soybeans and flowers, took over large tracts in the lowlands. Today, cultivation of marginal lands—areas previously reserved for pastoralists—extends to interior districts, generating new frontiers for land and water conflicts. Some pastoralists have been forced to change their social and economic activities; for example, young Maasai have migrated in large numbers to major urban centers in the country for employment (Kweka, 1999; Mbonile, 2001).

Water Conflicts in the Basin

My study identified seven major groups of water conflicts in the Pangani River basin between the following users:

- Communities and conservationists;
- Upstream and downstream users;
- Hydroelectricity producers and other users;
- Communities and donor agencies;
- Farmers and pastoralists;
- Rural and urban areas; and
- Communities and river basin authorities.

Table 1 lists the results of the study according to type of conflict and cases reported.

Communities and Conservationists

In the highlands, water catchment conservationists conflict with the community. The establishment of national parks like the Kilimanjaro and Meru Forest Reserves to conserve catchment areas and increase tourism has generated conflicts between both farmers and pastoralists. The farmers would like to use the conservation areas for farming and fuelwood gathering. The pastoralists would like to graze or move their livestock in the conserved areas. Discussions with farmers and pastoralists, as well as village and court records, revealed 136 incursions between the community and the national park authorities and workers between 1998-2000. On most occasions, the community members were fined or ended up in court. Often, the community responded by setting fire to the forest or fetching firewood illegally, in addition to poaching wildlife.

To resolve this problem, government and national park authorities introduced community participation in natural resources conservation, including water conservation. In addition, the park authorities now employ young people as tourist guides. However, some villages and communities such as the Maasai still believe that the benefits they receive are relatively small compared to the amount of grazing land and other benefits they have lost.

Upstream and Downstream Users

Traditional furrow irrigation schemes, largely organized by small-scale farmers, cover about 80 percent of the irrigated land in the upper Pangani basin (Pangani Basin Water Office, 1997; Kaniki, 1980). However, despite dating back to the 19th century, these irrigation methods are a major source of conflict because most of the time they use water inefficiently due to the lack of proper technologies and maintenance (Pangani Basin Water Office, 1997).

In the past, traditional furrow irrigation was concentrated in the highlands, but as migration increased this system spread to the lowlands; the increase in demand for irrigation caused the traditional system of rationing water to collapse sometime in the mid-1980s (Mwamfupe, 2001). In the highlands, stakeholders were not allocated adequate water by the controllers of

Table 1: Type of Water Conflicts, Interested Groups, Number of Cases Reported, and Responses (1998-2000)

ECOLOGICAL ZONE	VILLAGE	TYPE OF CONFLICT	INTERESTED GROUPS	CASES REPORTED	TYPE OF RESPONSE
HIGHLANDS	Ngiresi	Catchment area conservation and utilization of resources by community	Arusha National Park, Meru Forest Reserve, and community	136	• Fires • Deforestation • Non-farming activities and out-migration
	Materuni Mamsera	Catchment area conservation and utilization of resources by community	Kilimanjaro National Park and Forest Reserve	71	• Fires • Deforestation • Non-farming activities and out-migration
	Mamba Ndanda	Catchment area conservation	Pare Forest Reserve	28	• Conservation of land • Out-migration
LOWLANDS	Msaranga	Conservation of Njoro springs and Rau Forest Reserve; large-scale and small-scale irrigation; pastoralists and farmers; community and Moshi urban expansion	Irrigation authorities, local government authorities, and village governments	45	• More water regulations • Fights • Invasion of wetlands • Resistance to urban expansion
	Kisangara	Conservation of sisal plantations; reduction of water for hydroelectricity production; and lowland irrigation	Tanganyika Electric Supply Company, community, Sisal Authority	17	• Invasion of sisal areas • Deforestation of bush lands and grasslands • In-migration
	Mbuguni	Pastoralists and farmers; pastoralists and miners	Farmers, pastoralists, and miners	78	• Fights and looting • Invasion of bush lands

Source: Adapted from Mbonile (2005).

clan furrows, amplifying water conflicts. Small farmers in the lowlands reported that their share of the water was not adequate because upstream users were "too selfish" to share water with people downstream.

The same problem was viewed differently by large-scale farmers, pastoralists, and electricity producers, who all believed that water was being mismanaged in the highlands and that proper allocation required better coordination. However, an in-depth study of the study area revealed that the water shortage was the result of population growth—both in the highlands through natural increase and in the lowlands through migration—as well as poor maintenance of the furrows due to the loss of labor in the catchment area. As youth migrate away from the highlands, the older people cannot manage the furrows frequently because they are located on steep slopes of the mountains.

Hydroelectricity Producers and Other Users

The hydroelectric generating company, the Tanganyika Electric Supply Company (TANESCO), conflicts with other users over water. The establishment of three hydroelectric power stations along the Pangani River initially attracted fishing communities and workers. Later, small towns developed to serve these communities and increased the demand for water near power stations. In the 1990s, water withdrawn for irrigation caused some of the major tributaries of the Pangani River to almost

Mt. Kilimanjaro, Tanzania (© R. Strickland, courtesy of USAID).

run dry, leading to power rationing in the country in 1992, 1994, 1997, and 2000 (Ministry of Water, Energy and Minerals [MWEM], 1995; "Power sharing to begin very soon," 2000).

Hydrological data collected by TANESCO suggest that water supply for its dams is declining due to uncontrolled irrigation in the upper part of the basin. TANESCO believes that since hydroelectricity is essential for industrial production and domestic consumption, it should be granted the entire right to withdraw water from the Pangani River, which is in violation of the 1991 Water Right Act.

The Water Right Act of 1991 established the first river basin authority in Tanzania in the Pangani River basin. Since that time, small-scale irrigators have complained that these water rights were introduced to protect the power generating plants, and feel that either they do not get their share of water or they get too little, too late. On the other hand, the large water users lament that they do not get enough water to produce power or food because the small farmers withdraw too much water and return very little to the river systems. The large-scale planters maintain they withdraw only enough water to supplement rainfall moisture and return excess water to the river systems, arguing that the amount they use does not significantly affect power production. In this conflict, where the national interests are in jeopardy, large users like TANESCO and the plantations are likely to win. Nonetheless, all stakeholders must be involved if efforts to resolve this conflict are to be sustainable.

Communities and Donor Agencies

The competition among donor agencies in the basin generates confusion in the community. These donor agencies are largely run by expatriates who serve the interest of their countries. At the same time, they exacerbate water problems in the basin because they compete for the same resources.

The donor agencies operating in the basin include the World Bank, United Nations Development Programme, Food and Agriculture Organization, International Labour Organization, JICA, GTZ of Germany, and the Norwegian Agency for Development, in addition to NGOs from the Netherlands and Belgium. Most of these agencies are involved in projects that rehabilitate existing irrigation schemes, encourage soil conservation, and improve water management.

Some of the projects collapsed after the donor left because they were directly funded by the agencies and thus bypassed the local community and ministries. A resident in Kisangara village describes a typical situation:

> The whole Kisaranga village received clean water 10 years ago when the donor agency called JICA constructed gravity water pipes from River Kisangara. After their departure there is no single drop of clean water and so we are forced to rely on one pipe, which belongs to the sisal estate. Unfortunately the owner is an Indian who does not care about the welfare of the people. He has allocated about just an hour in the morning for all these people to fetch water and so most women sleep near the pipe just to get one bucket of water. (Mzee Sangiwa, personal communication)

Farmers and Pastoralists

The study revealed a number of conflicts emerging from the co-existence of farmers and pastoralists. In my survey, every household raised serious concerns about the increasing number of livestock in the basin, which has risen dramatically over the last 20 years as lowland pastures far from the river degraded due to heavy use and drought.[2] Some blamed the high numbers of cattle for the current crisis at the Nyumba ya Mungu hydroelectric dam, due to their heavy consumption of water and land degradation from overgrazing.

Cattle entering fields and destroying crops and irrigation structures is a major source of conflict, sometimes leading to bloodshed or imprisonment. Agro-pastoralists established villages in areas reserved for livestock and have thus interfered with routes to cattle watering points (Campbell, 1999). Both farmers and pastoralists openly blame each other, categorically stating that in the past the boundaries between farmers and pastoralists were well-defined. In addition, the influx of cattle and other livestock in the basin has created a wave of cattle thefts, which is exacerbated by the Maasai belief that all cattle belong to them so they have the moral right to "recover" cattle from other tribes.

The large amount of livestock and cultivation in the lowlands' more marginal lands has accelerated land degradation. Serious competition between livestock, population, and wildlife has far exceeded the basin's carrying capacity leading to the heavy deterioration of biomass, which endangers the entire ecosystem. This conflict is clearly revealed by the Maasai residents of the Mbuguni village, one of whom categorically stated:

> The people from the regional headquarters and Pangani Water Basin Office keep on telling us that this water belongs to the nation and we are supposed to share it with other people who do not know the importance of livestock to the Maasai. The name Kikuletwa is a Maasai name showing that the river belongs to us from time immemorial. We know they have big guns but we are going to defend it with our spears. (personal communication)

Population growth and migration in Tanzania's Pangani River basin—arguably the most water-stressed basin in the country—have intensified local water conflicts. Resolving these conflicts requires understanding the socio-cultural context of the local communities and increasing stakeholder involvement in water management.

Rural-Urban Competition

As the people migrate to urban areas, the demand for water in towns such as Arusha and Moshi rapidly increases for both domestic and industrial activities. Moreover, some large rivers have been dammed in order to supply the water for these towns, reducing the flow of water downstream and causing some of the rivers to dry up completely during the dry season.

In addition, these urban centers generate solid and liquid waste that pollutes the major source of water (Kalwani, 2001). In both Arusha and Moshi, less than 5 percent of the population is connected to the central sewage system and the rest use pit latrines or other elementary sanitation facilities (Chapuis, 1999; Kalwani, 2001). Water pollution increases as the urban areas grow and as farmers use more chemical inputs to grow enough food to feed the fast-growing population. As a result most downstream households are forced to drink spring water or boil their drinking water.

Communities and River Basin Authorities

The government has attempted several times to introduce systematic state intervention in the

The squeezing of pastoralists into ecologically poor marginal lands has continued unabated since the 1930s, even as the population of pastoralists and their livestock has grown.

water sector, culminating with the establishment of the Pangani Water Basin Authority in 1991, which transferred ownership of water to the government (MWEM, 1995). After the establishment of these authorities, most traditional water rights were treated as illegal, hence generating several water conflicts between the government and the community.

Documented water rights in the basin total about 33.4 m^3/s but the inspection conducted by the Pangani Basin Water Office between 1992-1993 showed that the actual withdrawal of water for irrigation alone far exceeded this level, running to about 48 m^3/s or more. Inspections by the Water Office revealed many withdrawals without water rights and a huge amount of water wastage, as well as many users withdrawing more water than allocated (Pangani Basin Water Office, 1997).

The government's water rights policy intensified the basin's water shortages, by discouraging some potential migrants from moving to villages that were paying for water and thus concentrating population in a few villages without water rights. Also, many of the water rights, which were allocated during the pre-independence period, allowed very high withdrawal rates because they were issued when the population was very low. Since these water rights still exist they have been a major source of water conflict (Huggins, 2000).

Conflict Resolution and Policy Implications

Conflict resolution mechanisms in the Pangani basin must be designed to suit the type of water conflict they seek to address. For example, resolving the conflict between the community and conservationists requires protecting forests on the Meru, Kilimanjaro, and Pare mountain ranges from deforestation to ensure a sustainable supply of water. Conservationists should increase community participation and share the benefits of tourism and forest products with local communities. In addition, local communities must be trained in the best ways to conserve land and increase crop yields, since when yields are poor people exploit the forests as a survival strategy.

Sustainable water management regimes have existed in the Pangani basin since the pre-colonial period, when the management of water was an integral part of the customary laws and behavioral norms of each tribe or community. These customary laws, most of which are still respected by a wide spectrum of the basin's people, insured that ownership of water resources was vested in the local community or clan rather than a household or individual. Community authorities distributed water after evaluating the demands of an individual or different water uses. For example, among the Maasai in the basin, any person could draw water from any point in the river for domestic use, but only clan members assigned that particular point could use it to water their cattle. This type of regulation ensured that there was no congestion of livestock at one point, thus avoiding land degradation and loss of water through evaporation. A similar principle was used by the Chagga in Mount Kilimanjaro: Any person or neighbor could draw water for domestic use from clan furrows, but only clan members could use it for irrigation. The violation of water regulations (e.g., washing at the source of water reserved for domestic use) was a serious offense and the victim was fined, beaten, or chased away from the village or community (Kimambo, 1996).

These customary regulations prevented the over-exploitation of water. Therefore, I argue that most modern interventions in water supply should not be superimposed on these systems. The concept that water belongs to the state is completely rejected by traditional communities. To resolve some of these water conflicts, traditional methods of water conservation should be revived and maintained, as sustainable water management cannot be achieved without involving the stakeholders.

The conflict between the community and basin authorities is the result of commercialization and state interference. Traditional conflict resolution mechanisms are undermined by decrees or legislations. Due to their economic strength, rich farmers and estates get water rights without community consent. Even

worse, once these water rights are issued other people are barred from using the resource. To resolve this conflict I recommend that the 1999 Land Act, which transfers all land and resource matters to the villages, be enforced.

The conflict between hydroelectric generators and other users can only be resolved if institutions like TANESCO realize that other users were there before them. They should also realize that proper management of the basin's water resources must include all stakeholders. However, long-term resolution of this conflict requires the introduction of alternative sources of energy. In addition, rural electrification programs would help people understand the importance of power stations.

Water conflicts between farmers and pastoralists will persist if the in-migration of farmers to former pastoral lands is not controlled. The squeezing of pastoralists into ecologically poor marginal lands has continued unabated since the 1930s, even as the population of pastoralists and their livestock has grown. The mixing of two incompatible livelihood systems has been the main cause of water conflict in the basin. The wetlands, which were reserved by the pastoralists for watering livestock, have been invaded by farmers growing rice. To resolve this problem, land for grazing livestock and farming should be separated, and the water rights of each group respected.

Notes

1. This article is based on and adapted from "Migration and intensification of water conflicts in the Pangani basin, Tanzania." (2005). *Habitat International 29,* 41-67.

2. The number of livestock that exist in the Pangani River basin is uncertain, as the movement of livestock in and out of the basin, as well as within the area, makes an assessment difficult. Furthermore, most livestock are located in remote and almost inaccessible areas.

References

Campbell, David J. (1999). "Development and change in Mount Kilimanjaro area of Kijiado district, Kenya." In *Mount Kilimanjaro: Land and environmental management* (pp. 59-69). Nairobi, Kenya: French Institute for Research in Africa.

Chapuis, Odile. (1999). "Urbanization and environmental concern in Moshi Municipality, Kilimanjaro region." In *Mount Kilimanjaro: Land and environmental management* (pp. 93-97). Nairobi, Kenya: French Institute for Research in Africa.

Gleick, Peter. (2006). *Water conflict chronology.* Pacific Institute for Studies in Development, Environment, and Security. Available online at http://www.worldwater.org/conflictchronology.pdf

Gould, W.T.S. (1992). "Population mobility." In M.B. Gleave (Ed.), *Tropical African development: Geographical perspectives* (pp. 284-314). New York: Longman, Harlow.

Huggins, Christopher. (2000). *Rural water tenure in East Africa: A comparative study of legal regimes and community responses to changing tenure patterns in Tanzania and Kenya.* Nairobi, Kenya: African Centre for Technology Studies.

IUCN Eastern Africa Programme. (2003). *Pangani basin: A situation analysis.* Nairobi, Kenya: IUCN-The World Conservation Union. Available online at http://www.iucn.org/themes/wani/pub/SituationPangani.pdf

Japanese International Cooperation Agency (JICA). (1988). *Kilimanjaro regional integrated programme.* Moshi, Tanzania: JICA.

Kalwani, Jumanne D.S. (2001). "Rapid urbanization and the environment: A case study of Moshi Municipality." *Tanzanian Journal of Population Studies and Development 8*(1& 2), 11-26.

Kaniki, Martin Y. (1980). *Tanzania under colonial rule.* London: Longman.

Kimambo, Isaria N. (1996). "Environmental controls and hunger in the mountains and plains of Northern Tanzania." In Gregory Maddox, Isaria N. Kimambo, & James L. Giblon (Eds.), *Custodians of the land: Ecology and history of Tanzania* (pp. 71-95). London: James Curry, Mkuki na Nyota & Ohio University Press.

Kironde, J.M.L., & Suleiman Ngware (Eds.). (2000). *Urbanizing Tanzania: Issues, initiatives and priorities.* Dar es Salaam, Tanzania: Dar es Salaam University Press.

Kweka, Opportuna. (1999). *Migration and land use changes in Arusha region: A case study of Maasai in Monduli District.* Unpublished master's thesis, University of Dar es Salaam, Dar es Salaam, Tanzania.

Maddox, Gregory, Isaria N. Kimambo, & James L. Giblon (Eds.). (1996). *Custodians of the land: Ecology and history of Tanzania.* London: James Curry, Mkuki na Nyota, & Ohio University Press.

Madulu, Ndalahwa, & Basia Zaba. (1998). "Water availability and rural migration in Mwanza region, Tanzania." *Tanzanian Journal of Population Studies and Development 5*(1&2), 23-38.

Maro, Paul. (1975). *Population growth and agricultural change in Kilimanjaro 1920-1970.* Dar es Salaam, Tanzania: Dar es Salaam University, Bureau of Resource Assessment and Land Use Planning.

Mbonile, Milline J. (1999a). "Population dynamics on the slopes of Mount Kilimanjaro." In *Mount Kilimanjaro: Land and environmental management* (pp. 18-23). Nairobi, Kenya: French Institute for Research in Africa.

Mbonile, Milline J. (1999b). "Population mobility and migration in Mount Kilimanjaro." In *Mount Kilimanjaro: Land and environmental management* (pp. 24-33). Nairobi, Kenya: French Institute for Research in Africa.

Mbonile, Milline J. (2001). "Rural population mobility in the Pangani basin, Tanzania." In J.O. Ngana (Ed.), *Water resources management in the Pangani basin: Challenges and opportunities* (pages 14-27). Dar es Salaam, Tanzania: University of Dar es Salaam Press.

Mbonile, Milline J. (2005). "Migration and intensification of water conflicts in the Pangani basin, Tanzania." *Habitat International 29,* 41-67.

Ministry of Water, Energy and Minerals (MWEM). (1995). *Water resources management in the Great Ruaha basin* (Report for the Rufiji Water Basin Office). Tanzania: MWEM.

Mwamfupe, David G. (2001). "Shortage of water for irrigation and farmers' response: A case of Makuyuni and Kahe wards in Kilimanjaro region, Tanzania." In J.O. Ngana (Ed.), *Water resources management in the Pangani basin: Challenges and opportunities* (pages 73-82). Dar es Salaam, Tanzania: University of Dar es Salaam Press.

Pangani Basin Water Office (PBWO). (1997). *Pangani Basin Authority annual report.* Tanga, Tanzania: PBWO.

"Power sharing to begin very soon." (2000, December 3). *Daily News.*

Spear, Thomas. (1996). "Struggles for land: The political and moral economics of land on Mount Meru." In Gregory Maddox, Isaria N. Kimambo, & James L. Giblon (Eds.), *Custodians of the land: Ecology and history of Tanzania* (pp. 213-240). London: James Curry, Mkuki na Nyota, & Ohio University Press.

University of Dar es Salaam & United Nations. (1993). *Population, environment, and development in Tanzania.* New York: United Nations.

HIV/AIDS and Governance in Africa

By the end of the 20th century, two-thirds of the countries in sub-Saharan Africa had embarked on comprehensive democratic transitions. As the 21st century begins, how will these transitions continue amidst HIV prevalence as high as 20, 30, and even 40 percent of the active population in some countries? Imagine states largely emptied of people between the ages of 15 and 49 years, the remaining population composed largely of children, older citizens, and the very sick. State systems would exist, but would be unable to fulfill their core responsibilities and functions. These "hollow states" could not provide sustained leadership across society or adequately interact with citizens through democratic institutions—and would thus be at risk for greater political instability.

Although the proximate cause of Africa's AIDS crisis is HIV, the underlying societal causes are much broader and more familiar. Across the continent, poverty structures not only the contours of the pandemic but also the outcomes for individuals. Until poverty is reduced we will make little progress toward either reducing transmission of the virus or enhancing capacity to cope with its socio-economic consequences. It follows that sustained human development is an essential precondition for any effective response to the pandemic in Africa. Herein lies Africa's predicament: How can we achieve the sustainable development essential for an effective response to the epidemic when the epidemic destroys the very capacities essential for the response—namely, by killing the most economically productive members of the continent?

AIDS and the African State

The disease exploits and exacerbates existing social and economic disparities and constraints in society. The ability of nations to improve the well-being of their citizens, build strong and stable societies, and expand opportunities for all is threatened by this epidemic. Women, children, and men who live in poverty and difficult circumstances are finding their conditions even more difficult, further increasing their chances of contracting the virus. The growing risk of HIV infection is especially evident among young women and girls, who comprise two-thirds of all young people with HIV/AIDS in sub-Saharan Africa (World Health Organization–Africa Region, 2005). Girls and young women are twice as likely to be infected with HIV than young men, and in some parts of the continent, they are six times more likely; in parts of eastern and southern Africa, more than one-third of teenage girls are infected with HIV (UNAIDS, 2004).

Declines in life expectancy reveal the epidemic's immediate impact. Average life expectancy is now 49.9 years in sub-Saharan Africa; in the absence of AIDS, it would have been about 62 years (UN Department of Economic and Social Affairs [UNDESA], 2005). In Botswana, life expectancy has dropped to 34, a level not seen since before 1950. In less than 10 years, many countries in

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the region will see life expectancies fall to near 30 years—the same as at the end of the 19th century (UNDESA, 2005).

Without adequate financial and strategic support for human capacity planning, calls for greater political leadership amount to mere rhetoric. In the absence of a functional civil service of well-trained, highly skilled, and knowledgeable people, such political promises cannot be kept. A fundamental organizational principle of the state—the cadre of civil servants who assure its effective functioning—is thrown into question by incapacity due to the prolonged illnesses and early deaths of government employees.

Take Zambia: According to the United Nations Commission on HIV/AIDS and Governance in Africa (CHGA), mortality figures in the education sector from 2001 to 2004, projected to 2011, indicate that 13,000 teachers will need to be trained, instead of the 5,093 needed without AIDS. A similar study of local governments reveals that Zambia could lose 32 percent of its workforce to HIV/AIDS over the next 20 years and government agencies will need to replace an additional 1.7 percent of the staff each year over the same period to maintain current staffing levels (CHGA, 2004).

It is not, however, only the absolute levels of mortality that should concern policymakers, serious though they are. They should be particularly concerned about the broader implications of high and rising levels of morbidity and mortality for institutional knowledge formation and retention—that is, how to sustain an organization and ensure that it operates efficiently under conditions of persistent loss of human resource capacity. The impact of HIV/AIDS on the educated and professional cadres reduces their ability to pass on their accumulated knowledge and expertise to succeeding generations. As a result, younger and less experienced workers find it harder to acquire the specialized skills, expertise, and professionalism needed for their jobs. In the longer term, fewer experienced officials will be available to train younger personnel in key formal skills, or pass on more informal standard operating procedures or norms such as ministerial accountability, bureaucratic neutrality, official ethics, and institutional transparency, with negative consequences for the quality of both public and private services.

The net effect of HIV/AIDS on the African state may be institutional fragility, thus compromising its overall capacity to deal effectively with national emergencies, while increasing political instability.

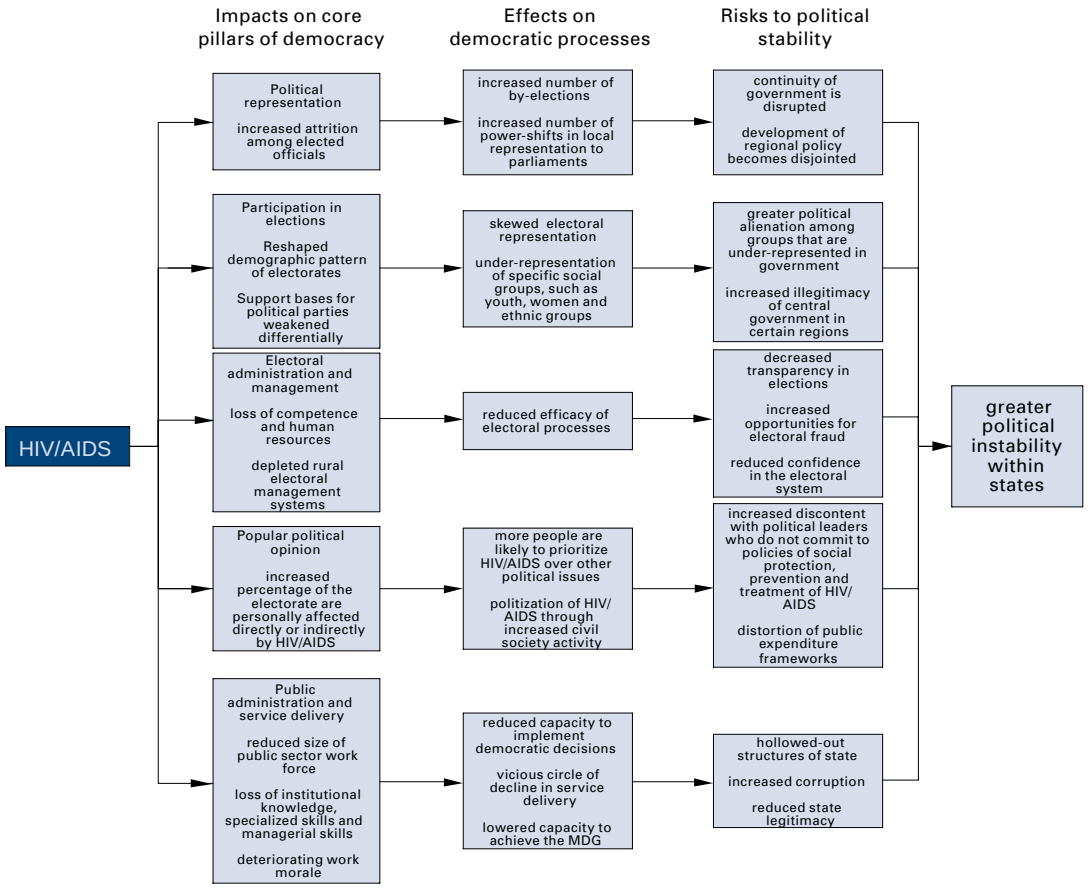
AIDS and Economic Development

The problem is particularly acute for people in rural areas. HIV/AIDS is significantly reshaping the indigenous transfer of knowledge of local agro-ecology, farming practices, and farm management. These changes in rural knowledge structures are, in turn, restructuring rural livelihoods at several levels. At the household level in some countries, chronically ill heads of households reduced the area of land they cultivated by as much as half, resulting in decreased crop production and lower food availability (Drimie, 2002). In rural Zimbabwe, maize output by households that experienced a death due to HIV/AIDS declined by nearly half, more in some households (Kwaramba, 1997).

Lowered production due to the loss of household labor often continues for at least one year after a death occurs. Some households, especially those already short of household labor, may never return to previous production levels, and families severely impacted by the loss of income may be forced to disperse to survive. At the community level, the epidemic is shifting the composition of agricultural output from commercial crops toward food for consumption, with adverse effects on incomes and employment. While this may ensure household food supplies in the short term, it has long-term effects on the growth of outputs, incomes, and foreign exchange earnings, and therefore on development.

A highly publicized World Bank study argues that after allowing for intergenerational losses of human capital (and knowledge), the projected macroeconomic effects of HIV/AIDS will be severe (Bell, Devarajan, & Gersbach, 2003). These intergenerational effects have already been widely noted, especially on agriculture (McPherson, 2002). The impact is further aggravated by existing weaknesses in state capacity, such as a lack of civil service reforms,

Figure 1: The Impacts of HIV/AIDS on Political Systems and Processes



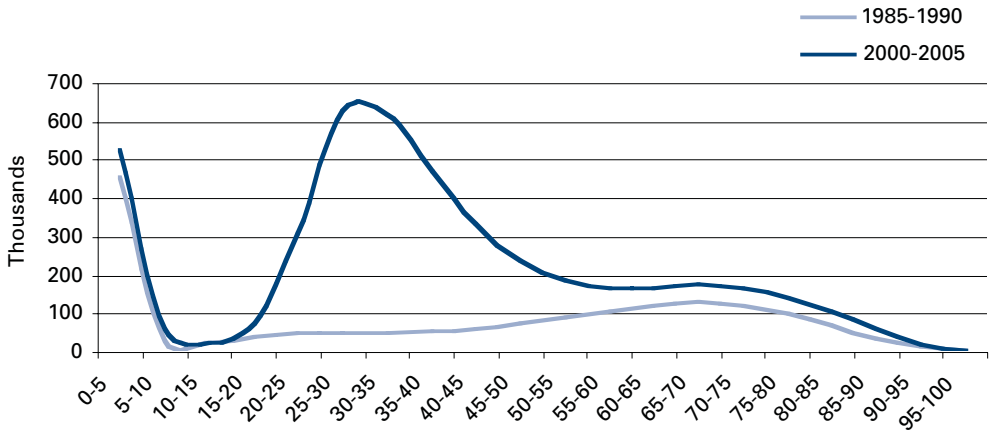
Source: Adapted from Poku (2006).

"brain drain" (staff leaving for the private sector or other countries), and financial constraints requested by international agencies such as the International Monetary Fund. In the most affected countries, the epidemic has already decreased institutional robustness and vitality, reshaped governmental structures, and restructured state-society relations.

Malcolm McPherson (2003) rightly argues that HIV/AIDS strips time out of the decision horizons of those who are infected or affected. Individuals who are HIV-positive (or think they are) concentrate on the present and immediate future. Many activities that used to be attractive when life expectancies were "normal" lose their appeal, and even their relevance. Consequently, HIV/AIDS changes economic behavior, often dramatically. The act of saving, for example, requires individuals to forego consumption. With time at a premium, the incentive to save diminishes. Investment, which involves the commitment of current resources in the expectation of some future benefit, becomes less attractive. At the macro level, these trends are self-reinforcing. The decline in savings reduces the resources available for investment. As investment falls, the rate of economic growth can decline, reducing savings.

As a result, we can expect national revenues to diminish in comparative terms and the productivity and profitability of businesses to fall. As production and service delivery is disrupted, income is also likely to fall. These are no longer projections; evidence suggests that families and businesses are shifting spending from productive activities to medical care and related services, reducing both savings and government revenues (CHGA, 2005). At the same time, the costs asso-

Figure 2: Adults 24–50 Are Hardest Hit by AIDS-Related Deaths



Note: Figure shows number of deaths in Botswana, Lesotho, Namibia, South Africa, and Swaziland by age.
Source: UNDESA Population Division (2005); courtesy CHGA.

ciated with dealing with the epidemic are increasing. Government agencies are diverting funds from planned development activities to pay for the costs of ill and dead employees. These declines in economic activity are reducing tax revenues, thus lowering the capacity of the public sector to function just when demand for public health, education, and training is increasing.

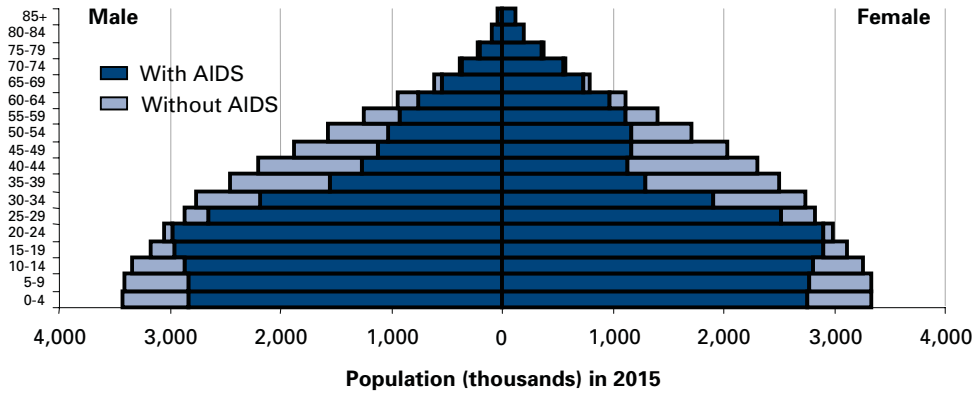
While all of the macroeconomic impacts are not immediately clear, we can anticipate that reductions in skilled human capacity due to declining life expectancy will eventually adversely affect economic output—which will be compounded by reduced efficiency. In high HIV-prevalence countries, we can also expect a non-linear impact of HIV/AIDS on economic growth: the longer the high HIV prevalence persists, the more difficult and costly the recovery will be. We are already seeing this in southern Africa.

The decline in economic activity takes place against a background of rising social service expenditures, both private and public, which further strains government budgets as well as increases poverty. According to CHGA findings, in countries with consistently low prevalence rates (below 4 percent), we can expect GDP to be only slightly affected (CHGA, 2005). But if nothing changes in countries where the prevalence is 10 percent or more, their economies could be 18 percent smaller by 2020. Even with conservative assumptions, the commission concluded that HIV/AIDS-related mortality and morbidity cost Africa about 15 percent of its GDP in 2000. This translates into a decline in income of 1.7 percent per year between 1990 and 2000, an amount greater than previous estimates based solely on the loss of output due to the epidemic.

Institutional Fragility and Political Instability

The net effect of HIV/AIDS on the African state may be institutional fragility, thus compromising its overall capacity to deal effectively with national emergencies, while increasing political instability (see Figure 1). The effect is circular: The epidemic weakens government institutions, rendering the government increasingly ineffective at stopping the very agent that is weakening it. The result is a downward spiral wherein the epidemic relentlessly reduces state capacity, even as the state requires ever-increasing capacity to stop the growing epidemic. The structures of govern-

Figure 3: By 2015 AIDS Will Have Reduced the Size of All But the Oldest Age Cohort in Southern Africa



Note: Figure shows data for Botswana, Lesotho, Namibia, South Africa, and Swaziland.
Source: UNDESA Population Division (2005); courtesy CHGA.

ment remain, but the ability to govern is diminished. The process is insidious because over the long term, sustained loss of human capacity is likely to leave states incapable of protecting and providing for their citizens.

"Hollow states" may suffer from decision-making that is inconsistent at best, or paralyzed at worst, which creates problems in formulating and implementing policy. As the impact of HIV/AIDS runs its course over the next decades, the key question is how to maintain and expand the ability of the state to supply essential goods and services, and also maintain security and stability. One of the biggest political challenges will be preventing the hollowing out of state structures due to staff losses and reduced resources. It will require minimizing the current and future losses of human resources, especially in key development and security sectors; and it will require new approaches to supporting both rural and urban livelihoods.

Looking to the Future

How can African states remain functional in the coming years, even as the worst of the epidemic lies ahead? Two actions may provide the answer: First, antiretroviral therapy (ART) increases the quality of life of people living with HIV/AIDS, in addition to easing the burden of their care on families and health systems. ART reduces mortality by up to 90 percent and cuts the risk of major opportunistic infections by 55-80 percent in the first years of treatment.

The reduction in the cost of antiretroviral drugs has significantly increased the potential for treatment. As treatment sustains health and prolongs lives, increased access to treatment could reduce the socio-economic costs of the epidemic. ART also enhances prevention as it both reduces the infectivity of people and creates incentives for individuals to get tested. In this sense, treatment and prevention are linked in effectiveness (Solomon et al., 2005). Increasing access to treatment can transform the effectiveness of prevention activities, in part by widening access to counseling and testing, and in part by mobilizing civil society organizations and communities (see, e.g., Katzenstein, Laga, & Moatti, 2003). And in the case of pregnant women, HIV transmission can be reduced substantially by ART programs that seek to prevent mother-to-child-transmission.

The costs of weak access to treatment are

Thus in most sub-Saharan countries, even with the present costs of anti-retroviral drugs, the total benefits of increasing access to treatment undoubtedly exceed costs.

much greater than the UNAIDS estimate of losses of 2.6 percent of GDP annually, once all of the direct and indirect costs of the epidemic are factored into the analysis. The benefits are, of course, not confined to the direct beneficiaries but also accrue to society as a whole. Thus in most sub-Saharan countries, even with the present costs of antiretroviral drugs, the total benefits of increasing access to treatment undoubtedly exceed costs.

The second element is human capacity planning. National policymakers must sustain and improve the pool of human resources in the face of HIV/AIDS. In most sub-Saharan countries most workers are free of HIV infection and are productively employed. Keeping this labor force free of HIV infection by expanding prevention activities must be a priority. National planning policy must not assume that public services can continue to be supported by the present establishment. Innovative, less-intensive ways of delivering education, health, and other services must be developed. Responding to losses by expanding existing training programs will quickly become too costly for national budgets. Both new ways of delivering essential public services must be developed and implemented, and less costly ways of meeting the needs for skilled and professionally qualified labor need to be identified and delivered.

Responding to the new and emerging conditions of labor markets—both internally and externally—will not be easy but it is essential that countries plan for the future rather than simply respond to market outcomes. The loss or movement of qualified personnel—from public to private, rural to urban, national to international sectors—requires that the public sector undertake salary and other reforms to ensure that it retains key human resources. To match and improve skills the educational sector must adapt its programs to meet the needs of other sectors as well as its own. Managers must ensure that workplace training and skills developed on the job are not lost.

Losses of labor are not of course confined to the public sector but are common throughout the economy. Many international firms have already responded to the threats posed by HIV/AIDS with comprehensive workplace programs that ensure access to care, support, and treatment for staff (and sometimes their families). There are some similar workplace programs in the public sector, but they are far too limited in number and in coverage. Support from international organizations and bilateral donors—both financial and technical—is required to rapidly scale up these activities.

Note: This article draws on research prepared for and by the Commission on HIV/AIDS and Governance in Africa (CHGA), which was created in 2003 by then-UN Secretary-General Kofi Annan under the leadership of Wilson Center Distinguished African Scholar K.Y. Amoako, then the executive secretary of the UN Economic Commission for Africa. The final report advances current scholarship in HIV/AIDS policy and governance, and is the culmination of a unique consultation by CHGA commissioners with a wide constituency in Africa and beyond. The findings and recommendations not only embody deep analytical insights derived from the commission's own research, but also reflect the views of the more than 1,000 Africans—including senior policymakers, advocacy groups, nongovernmental organizations, community-based organizations, people living with HIV/AIDS, research organizations, and UN agencies—who took part in the consultation process.

References

Bell, Clive, Shantayanan Devarajan, & Hans Gersbach. (2003). *The long-run economic costs of AIDS: Theory and an application to South Africa.* Heidelberg, Germany: Heidelberg University & The World Bank.

Commission on HIV/AIDS and Governance in Africa (CHGA). (2004, October). *HIV/AIDS and the public sector*. Background paper for CHGA Interactive Ethiopia, Addis Ababa, Ethiopia.

CHGA. (2005, December). *HIV/AIDS and economic growth in Africa: Preliminary projections*. Background paper for CHGA, Addis Ababa, Ethiopia.

Drimie, Scott. (2002). *The impact of HIV/AIDS on land: Case studies from Kenya, Lesotho and South Africa.* Pretoria, South Africa: Human Sciences

Research Council.
Katzenstein, David, Marie Laga, & J.P. Moatti. (2003). "The evaluation of HIV/AIDS drug access initiatives in Cote d'Ivoire, Senegal and Uganda: How access to antiretroviral treatment can become feasible in Africa." *AIDS 17*, S1-S4.
Kwaramba, Philemon. (1997). *The socio-economic impact of HIV/AIDS on communal agricultural production systems in Zimbabwe.* Harare, Zimbabwe: Zimbabwe Farmers' Union & Friederich Ebert Stiftung.
McPherson, Malcolm (Ed.). (2002). *Restarting and sustaining growth and development in Africa.* Unpublished manuscript, Belfer Center, John F. Kennedy School of Government, Harvard University.
McPherson, Malcolm. (2003). *Human capital, education, and economic growth: The impacts of HIV/AIDS.* Manuscript in preparation.
Poku, Nana K. (2006). *Aids in Africa: How the poor are dying.* Cambridge, UK: Polity Press.
Solomon, Joshua A., Daniel R. Hogan, John Stover, et al. (2005, January). "Integrating HIV prevention and treatment: From slogans to impact." *PloS Medecine 2*(1), e16.
UNAIDS. (2004). *World AIDS campaign 2004: Women, girls, HIV and AIDS* (Strategy note). Available online at http://www.aidsuganda.org/pdf/wac-2004_strategy-note_en_pdf.pdf
UN Department of Economic and Social Affairs (UNDESA). (2005). *AIDS and population growth in selected African countries.* Background paper prepared for CHGA.
World Health Organization–Africa Region (WHO-AFRO). (2005). *HIV prevalence: Context and challenge.* Background paper prepared for CHGA.

Members of the Nigeria Police promote condoms during an HIV/AIDS awareness and education campaign in Lagos, Nigeria (© 2005 Kunle Ajayi, courtesy of Photoshare).

Climate-Related Conflicts in West Africa

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Recurrent droughts, in conjunction with other social and economic factors, have led to conflicts among the rural people of the West African Sahel. These conflicts are a constant threat to the livelihoods of those who depend on the the Sahel's unique ecosystem for survival. To develop an effective system for managing these conflicts, we must first identify the economic, environmental, social, and cultural threats experienced by vulnerable groups. Second, we need to understand how vulnerable households and communities have traditionally managed such conflicts, and use this information to develop effective conflict resolution strategies. This article examines climate-related conflict generation and management in the Sudano-Sahelian region of northern Nigeria, within its social context. Placing potential and actual conflicts in the West African Sahel in their social contexts will help in developing and mainstreaming sustainable conflict management strategies into national development policies.

Using a combination of questionnaires, stakeholder analyses, and focus group discussions, I collected data from 800 households in 27 communities in northern Nigeria. The results show that natural resource-related conflicts are the predominant types of conflict in the region. Current climate variability affects the distribution and availability of these resources. Predicted climactic changes driven by global climate change will also affect this variability in the future, changing patterns of distribution and availability, and potentially further exacerbating conflict. The results of this research should inform policymakers in the design and implementation of conflict resolution strategies within the framework of sustainable development.

Drought, Climate, and Conflict in the West African Sahel

In the West African Sahel—a transition zone between the Sahara desert to the north and the savanna regions to the south—recurring droughts exacerbate vulnerability and conflicts. Average rainfall in the region decreases steeply from south to north, ranging from 1,000 mm/year in the south to 150 mm/year in the northern fringes. The short single wet season lasts for about 3-4 months. Over the last century, droughts have significantly increased in magnitude and intensity, and annual rainfall levels have decreased while inter-annual and spatial variability has increased, resulting in a 200 km southward shift in isohyets, or average annual rainfall bands (Adger & Brooks, 2003; Lebel et al., 1997; L'Hôte et al., 2002). The decreasing rainfall has also pushed northern pastoralists to migrate southward into lands occupied by sedentary farmers, causing conflicts and the widespread destruction of

farmlands and cattle, with adverse implications for the region's food and human security.

Predictions of climate change in the Sahel vary widely: while some models project a significant drying (Hulme et al., 2001; Jenkins et al., 2005), others foresee a wetter future, with vegetation expanding into the Sahara (Haarsma et al., 2005; Kamga et al., 2005; Hoerling et al., 2006). However, the progressive wetting of the Sahel does not necessarily mean agricultural productivity will increase, given the region's poor soils. Whatever the predictions, there is enough reason to believe that the climatic conditions for agriculture in the region could deteriorate, resulting in food scarcity and increasing vulnerability.

Vulnerability in the West African Sahel is not only caused by climate variability or change. Social, economic, and political factors interact with climate to cause vulnerability. The region is characterized by high population growth (about 3.1 percent) and rapid urbanization (estimated at about 7 percent) (Cour, 2001). The rate of food production can barely keep up: Intensifying and expanding agriculture has only marginally increased food production. The fallow system that was traditionally used to preserve soil fertility has almost disappeared; farmers in some areas now cultivate their land year-round, and with low fertilization, the soil quickly loses its productivity and yields decline.

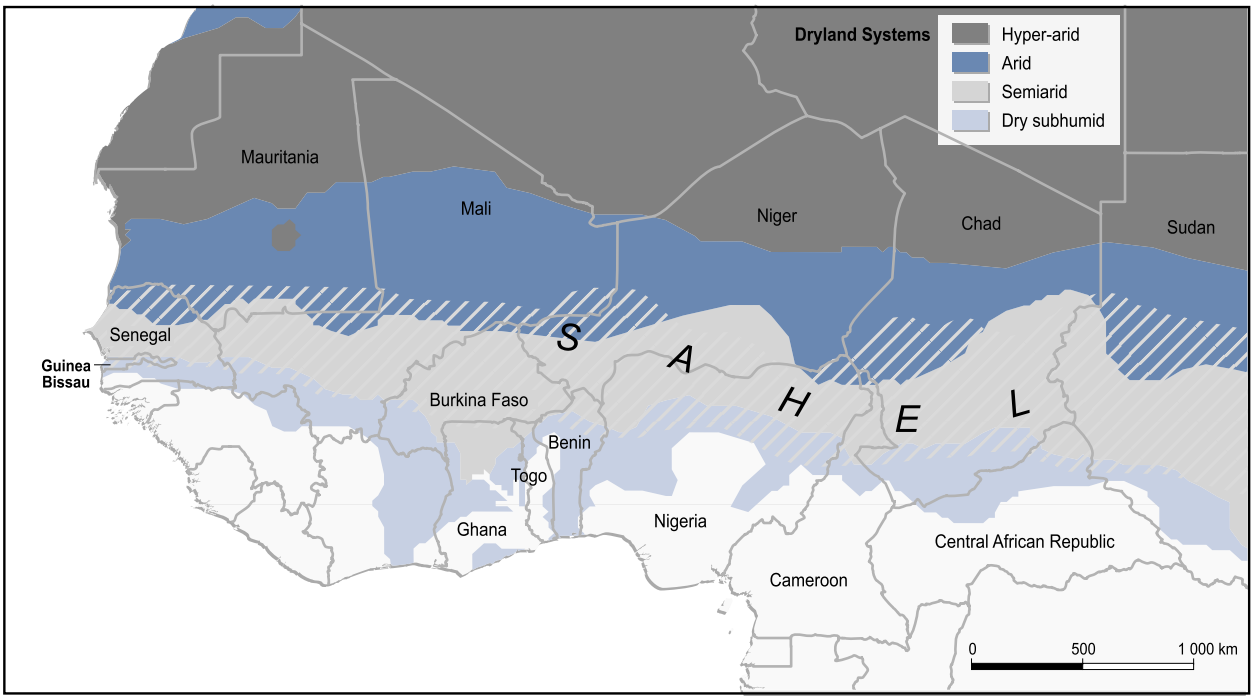
Only 8 percent of the land area in the West African Sahel is suitable for farming, and irrigated agriculture currently occupies about 5 percent of this land (Siebert et al., 2005; Lotsch, 2006). To meet the growing need for food and given the limited availability of cultivatable land, farmers are expanding into marginal lands traditionally used by pastoralists, heightening competition between livestock and agricultural production. Increased population pressure and the concomitant loss of corridors between wet and dry season grazing areas increasingly hamper livestock movement, further exacerbating conflict between and within groups.

In addition to marking a transition from pastoral to farming livelihood systems, the Sahel is also a zone of cultural transition, where the Islamic culture from the north mingles with the traditional cultures of the south. The region's large number of ethnic groups—as well as in-migration of several new ones—creates potential for conflict, as these groups have different interests in the resource base, possess different skills, and claim rights over different resources and areas. Reconciling these divergent interests is essential to achieving sustainable resource use.

Semi-arid dry land in Sahelian northern Nigeria (© Anthony Nyong)

Local communities in the Sahel have developed systems to manage conflicts—including climate-related conflicts—that have been effective in the past (Moore, 2005; Appiah-Opoku & Hyma, 1999). The apparent failure of these institutions to prevent the escalation of recent conflicts—such as those that have occurred in northern Nigeria (Williams et al., 1999); among the Turkana and the Maasai of Kenya (Lind & Eriksen, 2005); and among the Borona and Degodia in Ethiopia (Dejene & Abdurahman, 2002)—can be attributed to the juxtaposition of "modern" or "Western" tenure regimes with traditional regimes (Fiki & Lee, 2004). Besides rendering traditional conflict management strategies ineffective, these newer institutions may impose additional constraints on the users that reduce alternatives, flexibility, and sustainability, and exacerbate the continu-

The West African Sahel



Note: The Cape Verde Islands, although not included in the map, are also defined as Sahel. Prepared by Philippe Rekacewicz and Emmanuelle Bournay of UNEP/Grid-Arendal.
Source: Millennium Ecosystem Assessment (2005).

ing loss of indigenous belief systems and practices (Moore, 2005).

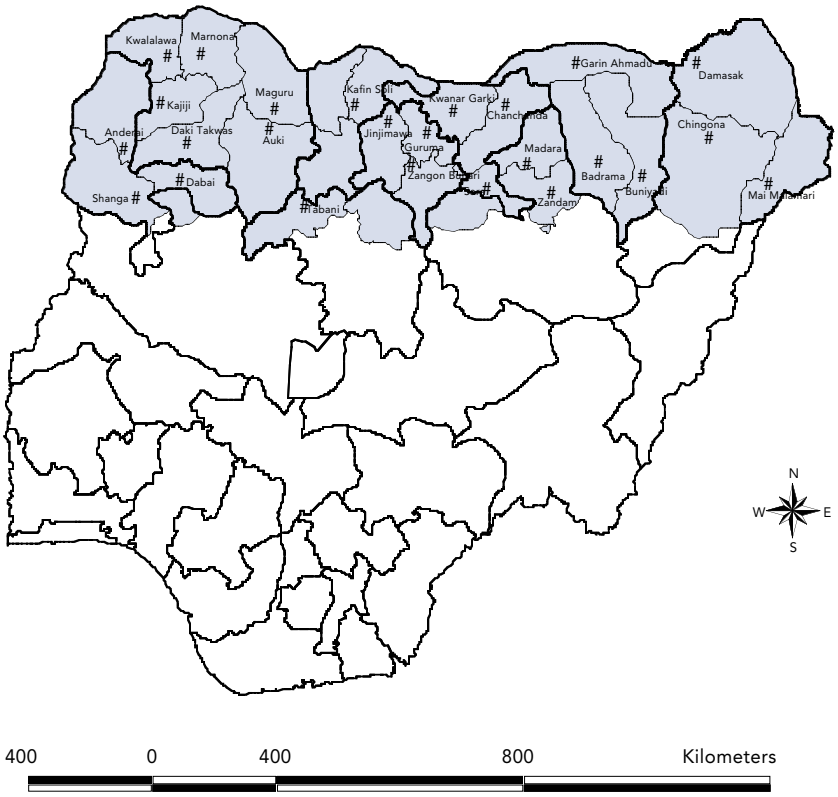
Although indigenous institutions have suffered and continue to suffer some erosion, this decline does not necessarily render them outdated. Thus, far from being anachronisms in today's world, indigenous institutions have much to offer contemporary policymakers searching for a bottom-up approach to conflict resolution and management. Building on the indigenous knowledge systems of the region could offer great prospects for effective and sustainable conflict resolution strategies. Therefore, any meaningful attempt at developing and implementing sustainable climate-related conflict management strategies should start by examining how the communities in the region have successfully managed previous conflicts arising from droughts.

Perceptions of Vulnerability in Northern Nigeria

Considering the sheer size of Nigeria's population (about 50 percent of the population of West Africa), addressing the problem of drought and conflict in this country could contribute greatly to solving similar problems across the region. Like the broader West African Sahel, the Sahelian and Sudano-Sahelian zones of northern Nigeria have suffered environmental degradation caused by successive years of poor rainfall and recurrent droughts, exacerbated by the combined effects of natural population growth and in-migration. With the growing population, more land is being cultivated and less is available for pasture and traditional land use systems that rely on mobility. As average rainfall decreases, pastoralists have migrated south into land occupied by sedentary farmers.

As part of a larger project to assess the vulnerability of poor rural households to droughts in the West African Sahel, about 800 questionnaires were administered to household heads in 27 communities in the Sudano-Sahelian zone of northern Nigeria between April 2003 and March 2004 (see Figure 1).[1] The questionnaire

Figure 1: Study Communities in Northern Nigeria



was supplemented by focus group discussions and stakeholder analyses. The survey found that respondents were most concerned about the risk of insufficient food, followed by shortage of water for domestic use (see results in Table 1). All the respondents' concerns are related to drought, indicating that it is a major problem in the study area.

Causes of Conflicts

The study identified four major causes/types of conflicts: conflicts over access to natural resources, political conflicts, religious conflicts, and domestic conflicts (see Figure 2). These conflicts span the individual/household, community, and regional scales. In the study area, the major cause of conflict (54 percent) was access to and competition for natural resources, resulting largely from the competition for land and water between livelihood groups, principally pastoralists and sedentary farmers. Only eight cases of domestic conflicts were reported (most domestic conflicts are considered "normal" if they do not disturb the community network and collective security and thus go unreported). Religious conflicts largely occurred between Christians and Muslims and sometimes had ethnic overtones.

Both sedentary farmers and pastoralists presented a conflicting perspective of their rights and entitlements to resources. For instance, while both pastoralists and sedentary farmers believe that water is a gift from God, the farmers believe that since they paid for the construction of the wells to serve domestic and irrigation needs, the pastoralists should not use the wells to water their cattle. The sedentary farmers also believe that the pastoralists deliberately bring cows to feed on their crops instead of grass. However, the pastoralists accuse the farmers of deliberately cultivating crops on the cattle paths in order to seek compensation from the

Table 1: Reasons for Vulnerability (ranked)

No	Perceived Risk	Percentage (%)
1	Insufficient food for people	58.2
2	Shortage of water for domestic use	50.9
3	Shortage of water for animals	50.3
4	Shortage of crops for cultivation	48.4
5	Animal diseases	42.5
6	Insufficient pasture for animals	36.6
7	Limited land for cultivation	34.6
8	Crop failure	26.8
9	Conflicts/insecurity	22.2
10	Human diseases	20.9
11	Low prices for animals	13.7
12	Lack of employment	12.4

Note: Households listed more than one risk.

Recurring droughts in northern Nigeria have become more intense and more destructive. The southward movement of average rainfall bands means that the line separating land that traditionally served the pastoralists and the sedentary farmers is no longer clear.

pastoralists and increase their income, particularly during droughts. The perceptual difference of both groups appears to amplify the conflict situation.

Conflicts Over Natural Resources

Using Lewis Coser's (1956, p. 8) definition of conflict—"a struggle over values and claims to scarce status, power, and resources in which the aims of the opponents are to neutralize, injure, or eliminate their rivals"—the study identified five different groups of conflicts that arise over the struggle for natural resources in northern Nigeria, as defined by the actors involved:

- Family/household conflicts;
- Inter-group conflicts between different livelihood and ethnic groups;
- Intra-group conflicts between different socio-economic groups within an ethnic group;
- Conflicts between the state and people; and
- Inter-regional and international conflicts (e.g., with neighboring countries like Chad, Niger, and Cameroon).

About 200 households, representing 24.5 percent of the respondents, reported experiencing conflicts, and about 10 percent had experienced more than one conflict. About 60 percent of the reported conflicts occurred in the dry season. More of the violent conflicts occurred in resource-rich areas like the fertile flood plains, river valleys, and oases that dot the study area than in drier areas. These conflicts largely involved the distribution of ownership rights between neighboring communities.

Losses From Conflicts

The conflicts have resulted in several losses: 22 households reported losing standing crops, and 41 reportedly lost livestock. Eight households lost members to violence. Since many farming households now keep livestock and many pastoralists are settling down, a particular household could potentially lose both crops and livestock, thus complicating the data analysis.

These losses are not only economic. The decimation of herds by drought has frightening implications for the pastoralists, as they rely primarily on their livestock for protein supply, money, and social security. To lose livestock, therefore, is to lose everything. Such animal losses constitute a disaster for many households and livelihood systems.

During the focus group discussions, the sedentary farmers—though losing less in monetary terms than the pastoralists—reported a higher level of perceived losses, indicating a

deeper subjective vulnerability. The sedentary farmers believed that the pastoralists were much richer and their relative losses were lower. These livelihood groups have differential vulnerabilities to the effects of resource scarcity; pastoralists are flexible and can migrate to cope with drought, while farmers are less resilient because they cannot uproot their crops and move them to more favorable locations.

Conflict Resolution: Case Study of the Hadejia-Nguru Wetlands

How are these conflicts managed and resolved? Williams, et al. (1999) present a case study of conflict resolution among pastoralists and sedentary farmers in the Hadejia-Nguru Wetlands in northeastern Nigeria, a seasonally flooded riverine plain of the Komadougou-Yobe River basin. Home to about a million people, the wetlands are of great economic importance to the region and many communities depend on them for their livelihoods. A less-productive arid area next to the wetlands, covered by sandy soils and stunted shrubs, is home to pastoralists. The loss of thousands of hectares of arable land to desertification in the region's northern fringes has led land cultivators and pastoralists to move to the wetlands to access the water. Large quantities of rice, vegetables, and wheat are produced annually in the wetlands. It also supports a large number of livestock, ranging from about 200,000 cattle in the wet season to about 500,000 cattle in the dry season, as well as about 1.5 million other animals such as camels, goats, and sheep. Most of the pastoralists do not have rights to the land and depend mostly on open rangelands, crop residues, and browsing to feed their animals. Wherever the pastoralists are allowed to settle, as they are increasingly doing, they are not given rights to the land, and as pressures on land increase, conflicts often break out between these pastoralists and their landlords over access to land and water resources (Williams et al., 1999).

The introduction of all-year farming in the wetlands hampers the pastoralists' access to crop residues, as the farmers burn down the fields immediately to prepare for dry-season farming. The addition of farms around water bodies has left insufficient passage for livestock to reach drinking points, escalating conflicts. In addition, farmers have encroached on most of the traditional cattle routes, largely due to government efforts to encourage commercialized agriculture and promote crop production.

Hadejia-Nguru Wetlands in northeastern Nigeria (© Anthony Nyong)

Over the years, the government has used the police and the courts to try to resolve the conflicts. The police have been accused of extorting money from the parties, especially the pastoralists. The pastoralists complain that since they had no land title or land rights, the courts favor the farmers in crop-damage cases. The use of police and courts to settle these disputes has supported the adversarial relationship between the farmers and the pastoralists, and deepened the conflicts.

In some cases, these conflicts have been resolved using existing traditional institutions that seek to ensure sustainability in both the social and ecological systems. Unfortunately, the effectiveness of these traditional institutions is waning. For instance, the pastoralists have grown to distrust the traditional rulers, who are mainly farmers. In addition, the pastoralists' traditional rulers do not have the same powers, and are not treated as equal partners in the adjudication of cases.

The use of police and courts to settle these disputes has supported the adversarial relationship between the farmers and the pastoralists, and deepened the conflicts.

The Hadejia-Nguru Wetlands Conservation Project of IUCN-World Conservation Union was established in 1987 to seek the sustainable development of the wetlands to benefit current and future generations and conserve wildlife within the wetlands and the surrounding drylands.[2] The region's frequent conflicts have hampered the achievement of this objective. To reach a more amicable solution, the management of the project attempted to set up a system that combined bargaining and negotiations, with strong involvement of both governmental and traditional institutions, as well as concerned stakeholders. They organized a series of workshops that led to the formation of a strong consultative forum to identify early signals of potential conflicts and seek amicable ways of avoiding them. The forum also sought to work with concerned parties to resolve existing conflicts and mainstream these strategies into national and regional development policies.

With the help of the relevant government agencies, NGOs, and traditional institutions, the forum succeeded in effectively establishing passage for pastoralists to watering points, greatly reducing the conflicts. The forum also encouraged the government of Nigeria to pass a decree that harmonized the country's national and sub-national water policies, thus improving the management of water resources for multiple users in the affected regions, which greatly reduced the frequency and magnitude of conflicts in the region.

Realizing that a major source of this conflict was the lack of access to fodder for livestock, the Hadejia-Nguru Wetland Conservation Project promoted the cultivation of fodder by the farmers to sell to the pastoralists at a subsidized rate. That way, the pastoralists did not have to graze their animals in the cultivated zones. Finally, the police were only called in for serious incidents.

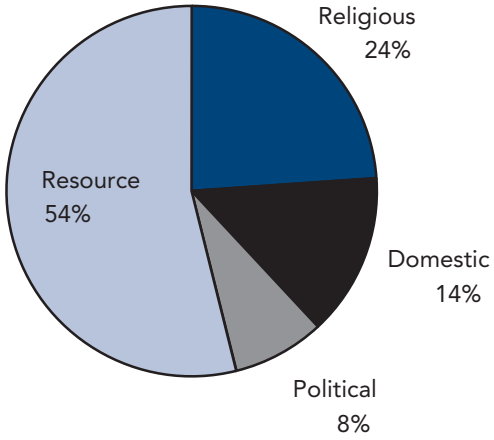
Conclusion

Recurring droughts in northern Nigeria have become more intense and more destructive. The southward movement of average rainfall bands means that the line separating land that traditionally served the pastoralists and the sedentary farmers is no longer clear. As these groups compete for the scarce ecosystem resources they share, conflicts have increased.

Over the years, traditional institutions have successfully managed drought-related conflicts in the region. The failure of these institutions to manage recent conflicts can be attributed to the rapid and continuing loss of indigenous belief systems and practices through the imposition of Western culture and norms. Reinvigorating these indigenous institutions could provide contemporary policymakers with effective bottom-up approaches to conflict resolution and management.

To successfully manage drought-related conflicts arising from resource use in the Sahel, strategies adapted from traditional conflict resolution practices must be mainstreamed into national and regional development policies. To do this, we must understand vulnerability to climate change from the perspectives of the vulnerable populations. The general strategy for coping with climate change should include both conflict resolution strategies and capacity-building programs for those most likely to suffer its consequences.

Figure 2: Causes of Conflicts



Notes

1. The study was part of the Assessments of Impacts and Adaptations to Climate in Multiple

Regions (AIACC), a global initiative developed in collaboration with the Intergovernmental Panel on Climate Change and funded by the Global Environment Facility (GEF) to advance scientific understanding of climate change vulnerabilities and adaptation options in developing countries (see www.aiaccproject.org). Funding for AIACC was provided by GEF, USAID, the Canadian International Development Agency, and the U.S. Environmental Protection Agency. I also wish to acknowledge the support of the various stakeholders, community leaders, chiefs, and respondents who gave their time to be a part of this research.

2. For more information, see http://www.iucn.org/themes/wetlands/hadnguru.html

References

Adger, W. Neil, & Nick Brooks. (2003). "Does global environmental change cause vulnerability to disaster?" In Mark Pelling (Ed.), *Natural disasters and development in a globalized world* (pp 19-42). London: Routledge.

Appiah-Opoku, Seth, & B. Hyma. (1999). "Indigenous institutions and resource management in Ghana." *Indigenous Knowledge and Development Monitor 7*(3), 15-17.

Cour, Jean Marie. (2001). "The Sahel in West Africa: Countries in transition to a full market economy." *Global Environmental Change 11*, 31-47.

Coser, Lewis A. (1956). *The functions of social conflict.* Glencoe, IL: The Free Press.

Dejene, Aredo, & Ame Abdurahman. (2002). "The root causes of conflict among the southern pastoral communities of Ethiopia: A case study of Borana and Degodia." In *Conflict in the Horn: Prevention and resolution* (Report of Ethiopia National Workshop). Addis Ababa, Ethiopia: OSSREA.

Fiki, Charles, & Bill Lee. (2004). "Conflict generation, conflict management and self-organizing capabilities in drought-prone rural communities in north-eastern Nigeria: A case study." *Journal of Social Development in Africa 19*(2):25-48.

Haarsma, Reindert J., Frank M. Selten, Suzanne L. Weber, & Michael Kliphuis. (2005). "Sahel rainfall variability and response to greenhouse warming." *Geophysical Research Letters 32*, L17702.

Hoerling, Martin, James Hurrell, Jon Eischeid, & Adam Phillips. (2006). "Detection and attribution of twentieth-century northern and southern African rainfall change." *Journal of Climate 19*(16), 3989-4008.

Hulme, Mike, Ruth Doherty, Todd Ngara, Mark New, & David Lister. (2001). "African climate change: 1900-2100." *Climate Research 17*,145-168.

Jenkins, Gregory S., Amadou T. Gaye, & B. Sylla. (2005). "Late 20th century attribution of drying trends in the Sahel from the Regional Climate Model (RegCM3)." *Geophysical Research Letters 32*, L22705.

Kamga, Andre F., Gregory S. Jenkins, Amadou T. Gaye, Adamou Garba, A. Sarr, & A. Adedoyin. (2005). "Evaluating the National Center for Atmospheric Research Climate System model over West Africa: Present-day and the 21st century A1 scenario." *Journal of Geophysical Research-Atmospheres 110*(D3), D03106.

Lebel, Thierry, Jean-Denis Taupin, & N. D'Amato. (1997). "Rainfall monitoring during HAPEX-Sahel: General rainfall conditions and climatology." *Journal of Hydrology 188-189*, 74-96.

L'Hôte, Yann, Gil Mahé, Bonaventure Somé, & Jean Pierre Triboulet. (2002). "Analysis of a Sahelian annual rainfall index from 1896 to 2000: The drought continues." *Hydrological Sciences Journal 47*, 563-572.

Lind, Jeremy, & Siri Eriksen. (2005, June). *The impacts of conflict on household vulnerability to climate stress: Evidence from Turkana and Kitui Districts in Kenya.* Human Security and Climate Change: An International Workshop, Holmen Fjord Hotel, Asker, Norway, 21-23 June 2005.

Lotsch, Alexander. (2006). "Sensitivity of cropping patterns in Africa to transient climate change." (CEEPA Discussion Paper No. 14). In *Special series on climate change and agriculture in Africa.* Pretoria, South Africa: University of Pretoria.

Millennium Ecosystem Assessment. (2005). *Ecosystems and human well-being: Desertification synthesis.* Washington, DC: World Resources Institute. Available online at http://www.millenniumassessment.org/documents/document.355.aspx.pdf

Moore, Keith M. (Ed.). (2005). *Conflict, social capital and managing resources: A West African case study.* Cambridge, MA.: CABI Publishing.

Siebert, Stefan, Petra Döll, Sebastian Feick, & Jippe Hoogeveen. (2005). *Global map of irrigated areas* (Version 3.0). Frankfurt & Rome: University of Frankfurt & Food and Agriculture Organization.

Williams, I., F. Muazu, U. Kaoje, & R. Ekeh (1999). "Conflicts between pastoralists and agriculturalists in north-eastern Nigeria." In Onigu Otite & Isaac Olawale Albert (Eds.), *Community conflicts in Nigeria: Management, resolution and transformation* (pp. 184-219). Ibadan, Nigeria: Spectrum Books Ltd.

Oil Conflict and Accumulation Politics in Nigeria

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In 2006, Nigeria was rocked by an explosion of violence directed against the large foreign oil companies operating in the oil-rich Niger Delta. Starting in January 2006 with the kidnapping of four foreign Shell employees by militants known as the Movement for the Emancipation of the Niger Delta (MEND), the violence continued to escalate through the rest of year, as the militants blew up pipelines, overran an offshore rig, killed Nigerian soldiers, and kidnapped and ransomed more than 50 oil workers. To stop its war on the oil companies, MEND's demands included restitution for the environmental damage wrought by the oil industry, greater control over oil revenues for local government, and development aid to improve living conditions in the delta (Junger, 2007).

Unfortunately, violent conflict between local communities and oil companies in the Niger Delta is not new, dating back to the early1990s. The history and ramifications of the oil conflict in Nigeria, as well as its consequences for state-society relations, the Niger Delta ecosystem, and the national economy, are well-known.[1] Relatively unknown is the prevalence of a convoluted "rentier space," its operational mechanisms and centrality to the origin, persistence, and continuation of the oil conflict. In this article, I outline the structure of the culture and patterns of accumulation surrounding oil and its implications for conflict, and attempt to develop a conceptual framework to explain the dynamics of Nigeria's oil conflict, which could be applied to similar rent-driven extractive economies in the global South.[2]

Oil and Conflict in Nigeria: Background

Nigeria, Africa's most populous country, is also the continent's largest oil producer. In 2005, the country produced 2.6 million barrels of oil per day, 2.3 million of which was exported, making it the sixth largest net exporter in the world (Energy Information Association [EIA], 2005b; 2006). The contribution of Nigeria's crude oil to U.S. oil imports has increased, from 8 percent in the late 1990s to about 14 percent in 2005 (Omeje, 2006b). Since the oil boom of the early 1970s, Nigeria's economy has been largely dependent on oil. Oil resources presently account for nearly 40 percent of GDP, more than 90 percent of foreign exchange earnings, and roughly 80 percent of government revenues (EIA, 2005a).

Nigeria's vast oil resources are mostly concentrated in the onshore and offshore areas of the volatile Niger Delta. Total proven oil reserves are estimated at about 36 billion barrels, while proven natural gas reserves are well over 150 trillion feet? (EIA, 2006). The oil-rich Niger Delta region, located along the Gulf of Guinea, is home to more than 20 million peo-

ple from more than 20 ethnic and language groups (in addition to dozens of sub-ethnic groups). These ethnic nationalities comprise more than 1,600 autonomous communities distributed into nine of the Nigerian federation's 36 states.

A large number of these autonomous communities host oil companies. Crude oil production (the upstream sector) in Nigeria is dominated largely by western transnational oil companies (TNOCs), including Royal Dutch Shell, ExxonMobil, ChevronTexaco, Agip, and Total. These oil companies operate joint venture partnerships with the Nigerian federal government, represented chiefly by the Nigerian National Petroleum Corporation (NNPC) and its subsidiaries, in which the government holds an average 60 percent equity share with the rest owned by its expatriate partners. A large number of smaller international and local oil and oil-servicing companies operate in the upstream sector. More than 90 percent of the personnel of the joint venture businesses are Nigerian nationals. The downstream sector (processing and refining) is dominated by the federal government, although its ongoing liberalization policies are likely to significantly affect the existing balance in the near future.

The emergence of an oil-dependent economy in the 1970s in Nigeria led to the systematic neglect of other sectors of the economy, especially the agricultural sector, which used to be the mainstay of the economy. In spite of Nigeria's vast oil resources, the World Bank estimates that as a result of corruption 80 percent of the oil revenues that accrue to the domestic front (i.e., the state and indigenous investors) benefit only 1 percent of the population (cited in EIA, 2005a). The United Nations (2006) ranks Nigeria 159th out of 177 countries on its Human Development Index and reports that more than 70 percent of Nigerians live on less than US$1 a day. Inflation, unemployment, and crime rates are high. Since the state has failed to provide development assistance, most of the Niger Delta communities, including those that do not host any oil companies, look to the oil industry for development aid.

Nigerians scoop up petrol after a defective oil pipe belonging to the Nigeria National Petroleum Corporation burst in the Iyana Ipaja neighborhood of Lagos, Nigeria (©2006 Akintunde Akinleye, courtesy of Photoshare).

Ethnicity and provincialism are significant factors in Nigeria's politics. Historically, the Nigerian federal state and the considerably nationalized oil sector have been dominated by a loose coalition of ethnic majority elites at the expense of the bulk of the ethnic minorities, including those of the oil-bearing Niger Delta region (Omeje, 2006c). Mindful of the central role of oil resources in the national economy, as well as its equity interest in its joint venture partnerships with the dominant TNOCs, the Nigerian state usually intervenes on behalf of the oil industry using legislation, public policy, and military reprisal to resolve the conflicts between the oil industry and local Niger Delta host communities.

Statutorily, ownership of oil and all mineral resources in Nigeria is vested in the federal state. All land is also, by law, state property, but this controversial law is only activated when the vested economic or political interests of the country are at stake (Omeje, 2005). The federal government appropriates and retains a greater part of the oil revenues and rents, a substantial percentage of which are distributed to the com-

Since the mid-1990s, the minority ethnic communities of the oil-bearing Niger Delta region…have waged a formidable struggle of unrelenting violent protests, including oil theft, pipeline sabotage, and kidnappings.

posite states and units of the federation. An additional 13 percent of the revenues derived from onshore and near-shore oil resources are paid to oil-bearing states in the Niger Delta. The oil-bearing states argue for a much larger share of the oil resources, to the irritation and resentment of both the federal government and the non-oil-endowed states.

Oil-related rents (royalties, taxes, oil export earnings, interests on joint venture investments, etc.) are the lifeblood of Nigeria's economy. The domestic budget and the huge import trade sector are mainly financed by oil revenues. Factions of the country's elite, with strong interests in the allocation, appropriation, and use of oil revenues, dominate all levels of government. Their interests conveniently combine with those of the state to support a regime of predatory accumulation and lawlessness. The actions of some TNOCs—insensitivity to the local environment; destruction of biodiversity; inflation of contracts, imports, and supplies; and collusion with state officials to subvert tax and investment policies—are made possible by the accumulation climate encouraged by the rent-seeking political economy (see, e.g., Omeje, 2006c; Frynas, 2000). Comparatively, the local elites' predatory accumulation practices and devices tend to be more flagrant than those of the oil-sector expatriates (Omeje, 2006b).

The Niger Delta suffers from severe environmental degradation, due to the industry's history of oil spills, lax environmental regulations, and government complicity, as well as ongoing marine and air pollution (EIA, 2006). Shell and ChevronTexaco, the two TNOCs with the largest onshore and near-shore operations in the Niger Delta, are the major culprits, which partly explains why they are the main targets of most contemporary violent anti-oil protests (including MEND's activities). Such "petro-violence" mostly affects oil companies with facilities and operations near human settlements (i.e., onshore and near-shore areas). Oil companies that mostly operate offshore, such as ExxonMobil, are less culpable for environmental offenses against and encroachment on human settlements and livelihoods, and thus they are less likely to antagonize the Niger Delta communities.

The large onshore facilities of the federally owned NNPC cause as much ecological damage as some of the TNOCs. Paradoxically, local protesters and militias rarely attack the NNPC—apparently most locals perceive the NNPC as an outlaw arm of the state that will mobilize its security forces to resist any pressure to pay compensation in the event of environmental breaches associated with its oil facilities and operations. For the same reason, local militias rarely kidnap NNPC oil workers for ransom. The TNOCs occasionally invite the state's security forces to combat disruptive anti-oil protests but they are nonetheless more accountable and sensitive toward the development needs of the host communities than the NNPC.

Accumulation Politics and the Dynamics of Oil Conflict

The nature and patterns of accumulation within the "rentier space"—a term encompassing the acquisition, control, and disposition of oil and oil-related resources, including the financial benefits derived from them—are key factors in the oil conflict in Nigeria. The combination of the rent-seeking features of the economy with the neo-patrimonial traditions of the post-colonial state produces a convoluted political culture marked by clientelistic desperation. The key stakeholders, clients, and partisans of the political economy seek to pursue, fast-track, secure, protect, and defend oil-related accumulation by desperate measures that may include the use and threat of violence, extortion, and outright plunder—not to mention traditional practices like witchcraft.

Since the oil boom of the early 1970s, the principal stakeholders have remained the elites that dominate the state system, followed by the TNOCs and the oil industry. For obvious reasons, the elites and the top hierarchy of the oil industry occupy the strategic sphere of the

rentier space—the hub of its largesse. However, given the centrality of oil rent to the economy and society of Nigeria, the phenomenon is not limited to this top hierarchy. The general political discourse in Nigeria is pervaded by a high-stakes rentier mentality. This entrenched political culture informs and structures the behavior and socio-political orientations of TNOCs and the oil industry, grassroots communities (oil and non-oil), civil society, and most other sectors and constituents of the federation.

It is in the interest of the dominant rentier elites, and to a lesser extent, other stakeholders, to maintain a fundamentally compromised and dysfunctional state conducive to high-stakes accumulation. Furthermore, high-stakes accumulation is widely celebrated and glamorized in Nigerian society. Whereas the grassroots population is for the most part involved in acquisition—mainly for day-to-day survival—the dominant political elites are involved in lavishly amassing spoils. The result is a conflict between "aggrieved acquisitors" and "oppressive amassers." Understanding these accumulation politics is essential to understanding the dynamics of the oil conflict and the high-stakes calculations and maneuvers, including the activities of the Niger Delta leaders, activists, and militias.

Resonance of the Rentier Space

The universalization of high-stakes rent-seeking culture and politics in Nigeria has been progressively facilitated by two related factors. The first is the systematic decline into a regime of lawlessness and extremism through the protracted years of military dictatorship (1979-1999). Consequently, the economic, political, and cultural decline reached a crescendo, a cycle that the present democratic government is unable to reverse despite its rhetoric of reform. The second is the devastating effects of the International Monetary Fund/World Bank Structural Adjustment Programme (SAP) implemented in Nigeria beginning in 1986 to "correct" the balance of payment crisis. The policies of SAP created extreme deprivation and hardship among the grassroots populations and completely impoverished a large section of the middle class.

It will require a great deal of international pressure not only to compel the state to participate in a consequential roundtable with oil-bearing communities, but also to secure its commitment to far-reaching, proactive concessions that help meet the aspirations of the Niger Delta's people.

As the opulence and ostentation of the rent-collecting elites became widely visible, public reactions ranged from resentment and protest, to adulation, solidarity, jubilee, and, most significantly, "high-stakes bandwagonism": widespread motivation and drive to plunder. Despite the profusion of high-stakes acquisition, poverty is widespread at the bottom. The predatory logic and lopsidedness of the rentier space favors the amassing actors at the expense of the acquisition players. The insecurity in the acquisitive middle class aggravates the accumulation desperation, a tendency that resonates with the middle class in the larger society.

In the oil-rich Niger Delta that produced the wealth, the popular reaction was resentment, leading to an explosion of anti-oil protest and resistance against the state. Since the mid-1990s, the minority ethnic communities of the oil-bearing Niger Delta region have assertively established themselves as stakeholders in the accumulation process. They have waged a formidable struggle of unrelenting violent protests, including oil theft, pipeline sabotage, and kidnappings. Prior to this period, these ethnic communities were for the most part low-stakes clients and partisans.

The continued agitation of the Niger Delta minority groups for more access to oil rents has upped the ante of rentier politics nationwide. The fierce struggle and occasional warfare that have in recent years characterized discussion of the oil revenue distribution formula and the percentage that should accrue to the Niger Delta states are due to the perceived privileging of the Niger Delta by other real and putative national stakeholders. The 2005 National Political Reform Conference convened by President Olusegun Obasanjo to debate and offer remedies to the country's multi-faceted political problems was repeatedly torn apart by the debate over oil revenue distribution.

The campaign of the Niger Delta people for expanded access to rents and what they call "resource control" (perceived by others as a euphemism for a virtual monopoly) has sensitized the rest of the federation, including grassroots populations and civil societies in the states without oil, to a foreboding danger. Whereas the minority ethnic communities of the oil-bearing Niger Delta region have been transformed into stakeholders—even if only in name—the subject social groups and classes of the states without oil are now also clients and partisans of the rentier process.

The Way Forward

The oil conflict in Nigeria cannot be solved without dismantling the rentier space, including the patterns and culture of accumulation it supports. This dismantling will, of necessity, involve radically renegotiating or overthrowing the predatory interest of the most powerful stakeholders, as well as the "de-petrolization" of the economy. The high-stakes predatory interest of the country is certainly the most formidable potential obstacle. How to deal with this obstacle, especially in a non-violent way or with a minimum use of violence, is the key intellectual and practical challenge facing academic and policy experts.

The first step is a major trilateral conflict resolution and peacebuilding conference for key stakeholders, namely, the oil-bearing communities, the state, and the oil industry. To be credible, such a conference should be convened and facilitated by a reputable international NGO or inter-governmental organization. The conference should have an open-ended agenda to explore the underlying structures of the oil conflict, and proffer and implement functional remedies. The conference should, among other things, aim to develop robust mechanisms for: (a) holding the oil industry (both TNOCs and indigenous oil firms) to international corporate social and environmental responsibility standards; and (b) weapons amnesty and a disarmament, demobilization, repatriation, and rehabilitation (DDRR) program for all Niger Delta militias and anti-oil combatants.

For the conference to be successful, organizers must consult with stakeholders to develop the methods for nominating delegates and to negotiate the venue and structure. The state, the most powerful and obdurate stakeholder, must be sensitized to the need to make significant trade-offs to accommodate key demands of oil-bearing communities. It will require a great deal of international pressure not only to compel the state to participate in a consequential roundtable with oil-bearing communities, but also to secure its commitment to far-reaching, proactive concessions that help meet the aspirations of the Niger Delta's people.

Notes

1. See, for example, Okechukwu Ibeanu's "Oiling the Friction: Environmental Conflict Management in the Niger Delta, Nigeria," published in *Environmental Change and Security Project Report 6* (2000), and available online at http://www.wilsoncenter.org/topics/pubs/Report6-2.pdf

2. Portions of this article have been adapted from *High Stakes and Stakeholders: Oil Conflict and Security in Nigeria* (Ashgate, 2006). I am grateful to my colleague in the University of Bradford's Africa Centre, Dr. Usman Tar, and Meaghan Parker of the Woodrow Wilson Center for their helpful comments and input.

References

Energy Information Association (EIA). (2005a, June). *OPEC revenues: Country details.* Available online at

http://www.eia.doe.gov/emeu/cabs/orevcoun.html
EIA. (2005b). *Top world oil net exporters, 2005.* Available online at http://www.eia.doe.gov/emeu/cabs/topworldtables1_2.html
EIA. (2006, March). *Nigeria country analysis brief.* Available online at http://www.eia.doe.gov/emeu/cabs/Nigeria/Full.html
Frynas, J. Georg. (2000). *Oil in Nigeria: Conflict and litigation between oil companies and village communities.* Hamburg, Germany: Lit Verlag.
Junger, Sebastian. (2007, February). "Blood oil." *Vanity Fair.* Available online at http://www.vanityfair.com/politics/features/2007/02/junger200702
Omeje, Kenneth. (2005, September). "Oil conflict in Nigeria: Contending issues and perspectives of the local Niger Delta people." *New Political Economy 10*(3), 321-334.
Omeje, Kenneth. (2006a). *High stakes and stakeholders: Oil conflict and security in Nigeria.* Aldershot, United Kingdom: Ashgate.
Omeje, Kenneth. (2006b). "Petrobusiness and management of security threats in the Niger Delta, Nigeria." *Current Sociology 54*(3), 477-500.
Omeje, Kenneth. (2006c). "The rentier state, oil-related legislation and conflict in Nigeria." *Conflict, Security & Development* 6(2), 211-230.
United Nations. (2006). *Human development report 2006: Nigeria country table.* Available online at http://hdr.undp.org/hdr2006/statistics/countries/data_sheets/cty_ds_NGA.html

Conflict and Cooperation: Making the Case for Environmental Pathways to Peacebuilding in the Great Lakes Region

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Authoritarian regimes, genocides, and civil wars have plagued countries in the Great Lakes Region[1] in recent years. The region's nations rely heavily on natural resources—water, minerals, land—for economic development, as well as for the livelihoods of their people, and many of the region's conflicts are connected to these resources or other environmental factors. Water (as in the Zambezi and Nile River basins), minerals (as in the Democratic Republic of the Congo), fertile land (as in Zambia), or illegal hunting (as in the Virunga National Park) are pressured by degradation and demand, which can spur conflict. Many people in rural Africa still live off the land and depend on what nature offers for their survival. Unfortunately, many of the continent's gravest conflicts occur in these same areas.

But the extreme dependence on the environment can be an asset, not a curse. Political boundaries cut across ecosystems, creating cross-border dependencies that establish a common unifying force: the need to conserve natural resources. This mutual interest can facilitate dialogue and bring warring groups together to collaborate. Such efforts offer greater hope for lasting peace, as they are able to address the root causes of conflict, while also improving the capacity to prevent and resolve it. The environment thus becomes not just a cause of violence, but also a tool for making peace.

Sharing such crucial resources creates an enormous incentive to cooperate, and brings stakeholders to the negotiating table. In "The Case for Environmental Peacemaking," Ken Conca (2002) explains that cooperation over natural resources establishes a relationship of collaboration so critical to all parties that violent conflict seems less plausible. Peace, he suggests, should no longer be considered a lack of violence, but the existence of a shared identity among parties with "shared resource systems and ecological interdependencies." If states reach this degree of interdependence over critical natural resources, they may be less likely to resort to violent conflict.

Opportunities for environmental peacemaking in the Great Lakes Region have not yet been isolated, even though there are many examples of cooperation at the national, regional, subregional, and local levels. With its prevalence of conflict and transboundary ecosystems, the Great Lakes Region could be a potential model for a future worldwide initiative in environmental peacemaking.

The Great Lakes Region of Africa

The Context for Environmental Peacemaking in the Great Lakes Region

While peacebuilding and sustainable environmental management have not been directly linked in Great Lakes Region programs, many initiatives aim either at building peace or at engendering sustainable environmental management. The challenge is to link the two, thus using environmental management initiatives to build cohesive communities. While there is potential for leveraging peace through sustainable management of environmental resources in the Great Lakes Region, it is first necessary to understand the local, national, sub-regional, regional, and international contexts.

Countries in the Great Lakes Region are parties to numerous international[2] and regional[3] environmental agreements. These legal instruments are complemented by the New Partnership for Africa's Development (NEPAD), which recognizes that the vast and complex range of issues affecting the region's environment requires a combination of comprehensive initiatives. NEPAD has created an action plan to address the region's environmental challenges while also combating poverty and promoting socio-economic development. Under this plan, African countries agree to maintain the integrity of the environment and to ensure the sustainable use of their natural resources through partnerships with the international community.

A fisherman tries his luck at catching fresh water fish at the "Lac aux oiseaux" (Birds' Lake) in the Kirundo province of Burundi (© 2003 Isabelle Walhin, courtesy of Photoshare)

These initiatives, in conjunction with sub-regional groups like the Southern African Development Community (SADC), the East African Community (EAC), and the Intergovernmental Authority on Drought (IGAD), provide an institutional base for integrating the environment and conflict into the mainstream debate. Over and above these agreements, the countries of the Great Lakes Region have adopted principles for sustainable environmental management contained in the Rio Declaration and the 2002 Johannesburg Plan of Action.

But state-level cooperation is not enough: effectively using environmental pathways to peace requires directly involving a diverse group of stakeholders. Getting local actors to buy into the process is critical to the development of building peace through sustainable environmental management. Cooperation over water resources, for example, requires not only the participation of the basin states, but also their citizens. Similarly, the use of forests and wildlife as pathways to peace requires the involvement of both the national wildlife authorities and the people that depend on the resources. Citizens of local communities that live with and depend on the natural resources at issue will be more likely to support and take ownership of environmental peacemaking initiatives when permitted to take part in the decision-making process.

Local governance institutions could provide a starting point for environmental peacemaking in the Great Lakes Region. Although they may be informal or poorly articulated, such forms of governance provide the basic structure for community management of environmental resources. Since these norms are already embedded in the community's way of life, they represent an important link between conflict prevention and environmental management at the local level, and could be promising forums for environmental peacemaking programs.

From Rhetoric to Action

At the international level, the United Nations Environment Programme's (UNEP) Division of Early Warning and Assessment has initiated a process for integrating environmental management into peacebuilding. Through this Environment and Conflict Prevention Initiative, UNEP has documented institutions engaged in environmental management and those engaged in peacebuilding at the local, regional, and national levels. It found a lack of linkages among these institutions in the Great Lakes Region, despite the fact that their mandates overlap, as both types seek to alleviate poverty and ensure economic development.

To forge that connection, UNEP has helped institutionalize environmental peacemaking in the region by mainstreaming sustainable environment into the themes of the International Conference on the African Great Lakes Region, which is an ongoing process seeking lasting solutions to conflict. The Final Declaration of the Conference in December 2004 recognized and incorporated environmental issues as a cross-cutting theme in four key themes: peace and security; democracy and good governance; economic development; and regional integration and humanitarian and social issues. The heads of state from 11 countries asserted that they are "fully aware of the link between peace,

With its prevalence of conflict and transboundary ecosystems, the Great Lakes Region could be a potential model for a future worldwide initiative in environmental peacemaking.

environment, and development" (First Summit of Heads of State and Government, 2004). Early drafts of the declaration did not mention the environment, but discussions among UNEP, experts, and government representatives led the conference to add the environment to the high-level statement. Heads of state are expected to develop action plans based on the conclusions of the conference.

This recognition provides political capital that can be used to link the environment to peace and security in the Great Lakes Region. This capital is further amplified by the NEPAD Action Plans on the environment and on conflict. Additionally, sub-regional groupings such as SADC, EAC, and IGAD can further define the appropriate contexts for linking environment and security, using their existing platforms for environmental issues.

Local groups, too, can be engaged in environmental peacemaking, as evidenced by the Nile Basin Initiative's (NBI) efforts to involve diverse groups of stakeholders. Seven countries in the Great Lakes Region are participating in the NBI, which seeks to bring the basin countries together to jointly manage the Nile resources for the benefit of all. NBI's projects can build cohesion among communities, and thus peace, in the region. Expanding the forum to include stakeholders at lower levels creates a broader arena for cooperative solutions to regional environmental challenges, allowing different groups along the Nile, outside of the national governments, to meet to discuss common issues.

A cross-border biodiversity project in East Africa also offers potential for peacebuilding. To reduce biodiversity loss, the United Nations Food and Agriculture Organization and UNEP's Global Environment Facility (working with national environment agencies in Kenya, Uganda, and Tanzania) selected four biodiversity hotspots that lie on political borders: Rakai-Bukoba between Uganda and Tanzania; Karamoja-Turkana between Kenya and Uganda; Kajiado-Monduli between Kenya and Tanzania; and Same-Taita Taveta between Tanzania and Kenya. The countries' national environmental agencies, along with the EAC organs using the EAC Protocol on the Environment, are working with local communities on each side of the border to discuss forest management issues and identify inconsistencies between national policies and local cooperative norms. These interactions could yield peace dividends, as participants build relationships and identify their common environmental interests.

The Albertine Rift, which spans several states[4] in the Great Lakes Region, is a transboundary ecosystem with environmental peacemaking potential. The highly populated area contains multiple protected zones, as well as the habitat of mountain gorillas. In October 2005, Rwanda, the Democratic Republic of the Congo, and Uganda signed a declaration establishing a shared management system consisting of joint patrols, training, animal trafficking law enforcement, and conservation efforts. This environmental cooperation could lead to collaboration on additional issues.

Conclusion

Natural resources should be considered vehicles for peacebuilding, rather than solely sources of conflict. The Great Lakes Region, torn by war and highly dependent on natural resources, is an ideal place to study and implement environ-

Natural resources should be considered vehicles for peacebuilding, rather than solely sources of conflict.

mental peacemaking. Key questions for future research—already underway by UNEP's Environment and Conflict Prevention Initiative—include:

- Are environmental issues a factor in initiating and prolonging conflicts in the Great Lakes Region?
- What role does environmental governance play in conflict prevention and management?
- What is the role of national, sub-regional, regional, and international environmental institutions as carriers of governance norms for conflict prevention and management?
- What is the impact of conflict on the environment?
- Can tools used for sustainable environmental management be used for conflict prevention and management?
- To what extent can environmental management be used as a pathway to peace?

A deeper understanding of the links between sustainable environmental management and conflict will contribute to sustainable development, democratization, and equity. It improves access to resources and the sharing of benefits, within and across generations. It also broadens the field of players in the search for peace. Successful environmental peacemaking demands that resources are managed equitably and in a sustainable manner, requiring inclusive and participatory environmental decision-making processes and the recognition of environmental resource rights for all.[5]

Notes

1. Here, the Great Lakes Region includes Burundi, Democratic Republic of the Congo, Kenya, Rwanda, Tanzania, Uganda, and Zambia (see map).

2. Most are parties to the United Nations Convention on Biological Diversity and the Cartagena Protocol on Biosafety, the United Nations Framework Convention on Climate Change and its Kyoto Protocol, and the United Nations Convention to Combat Desertification, among others.

3. Countries in the region are also signatory members of the African Convention on the Conservation of Nature and Natural Resources, and the Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa.

4. Burundi, Democratic Republic of the Congo, Rwanda, Tanzania, and Uganda.

5. This article was originally published by the Wilson Center's Africa Program, in collaboration with the Environmental Change and Security Program, in November 2006. See www.wilsoncenter.org/africa for more information.

References

Conca, Ken. (2002). "The case for environmental peacemaking." In Ken Conca & Geoffrey D. Dabelko (Eds.), *Environmental peacemaking.* Washington, DC & Baltimore, MD: The Woodrow Wilson Center Press & The John Hopkins University Press.

First Summit of Heads of State and Government. (2004). *Dar-es-Salaam declaration on peace, security, democracy and development in the Great Lakes Region,* Dar-Es-Salaam, November 19-20, 2004. Available online at http://www.reliefweb.int/library/documents/2004/au-gen-20nov.pdf