Woodrow Wilson International Center for Scholars

USAID
FROM THE AMERICAN PEOPLE

ENVIRONMENTAL CHANGE AND SECURITY PROGRAM

REPORT

ISSUE 12 2006–2007

ecsp

environmental change & security program

Woodrow Wilson International Center for Scholars

USAID FROM THE AMERICAN PEOPLE

ENVIRONMENTAL CHANGE AND SECURITY PROGRAM

REPORT

ISSUE 12 2006–2007

Environmental Change and Security Program
The Woodrow Wilson International Center for Scholars
One Woodrow Wilson Plaza • 1300 Pennsylvania Avenue, NW
Washington, DC 20004-3027
Tel: (202) 691-4000 • **Fax:** (202) 691-4001
ecsp@wilsoncenter.org
www.wilsoncenter.org/ecsp

ecsp

environmental change & security program

ENVIRONMENTAL CHANGE AND SECURITY PROGRAM

Since 1994, the Environmental Change and Security Program (ECSP) has promoted dialogue on the connections among environmental, health, and population dynamics and their links to conflict, human insecurity, and foreign policy. ECSP brings international policymakers, practitioners, and scholars to Washington, D.C., to address the public and fellow experts on four specific initiatives: China Environment Forum; Environment and Security; Population, Health, and Environment; and Water: Navigating Peace.

The program distributes two annual journals, the *Environmental Change and Security Program Report* and the *China Environment Series*, to more than 7,000 people around the world. *ECSP News*, a monthly e-mail newsletter, links more than 3,000 subscribers to news, meeting summaries, and event announcements on the program's comprehensive website, http://www.wilsoncenter.org/ecsp. ECSP also publishes *Focus*, a series of papers on population, environment, and security (previously named *PECS News*), as well as original research and occasional reports. Visit our new blog, "The New Security Beat," for frequent posts linking you to the latest news and reports on environmental security: www.newsecuritybeat.blogspot.com.

ECSP's core activities are made possible by the generous support of the U.S. Agency for International Development's Office of Population and Reproductive Health. ECSP and its China Environment Forum also receive support from the Carnegie Corporation of New York, Rockefeller Brothers Fund, Tamaki Foundation, the United Nations Environment Programme, the U.S. Environmental Protection Agency, U.S. Agency for International Development, and private individuals. ECSP is directed by Geoffrey D. Dabelko and is housed in the Woodrow Wilson Center's Division of International Security Studies, headed by Robert S. Litwak.

The Woodrow Wilson International Center for Scholars is the living, national memorial to President Wilson established by Congress in 1968 and headquartered in Washington, D.C. It is a nonpartisan institution, supported by public and private funds, engaged in the study of national and world affairs. The Wilson Center establishes and maintains a neutral forum for free, open, and informed dialogue. The Center commemorates the ideals and concerns of Woodrow Wilson by: providing a link between the world of ideas and the world of policy; and fostering research, study, discussion, and collaboration among a full spectrum of individuals concerned with policy and scholarship in national and world affairs. The Center is directed by the Honorable Lee H. Hamilton, and its Board of Directors is chaired by the Honorable Joseph B. Gildenhorn.

Submissions and Correspondence

The *Environmental Change and Security Program Report* is sent annually free of charge throughout the world. To subscribe, contact ECSP at ecsp@wilsoncenter.org or (202) 691-4000.

CONTENTS

FOREWORD

GEOFFREY D. DABELKO

Editor

The vista of Ethiopia's ancient Rift Valley, speckled with shimmering lakes, stretches before me as our motorized caravan heads south from Lake Langano, part of a study tour on population-health-environment issues organized by the Packard Foundation. Sadly, the country's unrelenting poverty and insecurity are as breathtaking as the view—Ethiopia currently ranks 170 out of 177 countries on the UN Development Programme's Human Development Index. These numbers become quite personal when child after child sprints alongside the truck, looking for any morsel. Here, I don't need to read between the lines of endless reports to see the country's severe population, health, and environment challenges—they are visible in the protruding ribcages of the cattle and the barren eroding terraces in the nation's rural highlands.

When analyzing environment, conflict, and cooperation, scholars and practitioners most often focus on organized violence where people die at the business end of a gun. We commonly set aside "little c" conflict where the violence is not organized. However, while the Ethiopian troops fighting the Islamic Courts in Somalia garner the most attention, we should not miss the quieter—yet often more lethal—conflicts. For example, Ethiopia, like much of the Horn of Africa, continues to be beset by pastoralist/farmer conflicts over its shrinking resource base—increasingly exacerbated by population growth, environmental degradation, and likely climate change. In today's globalized world, these local conflicts may also have larger "neighborhood" effects, contributing to wars and humanitarian disasters, as in Sudan's Darfur region.

Another classic example of local environmental conflict lies in Ethiopia's national parks, which successive governments carved from inhabited land in the mid-1960s and 1970s.

Those disadvantaged by the parks often took their revenge on the state by burning buildings, cutting trees, and hunting wildlife. Some resettled the parks, bringing cattle and cultivating sorghum. This conflict presents a terrible dilemma, but also an opportunity: If the government and its partners can offer residents secure livelihoods tied to sound environmental practices—such as jobs as park rangers or in ecotourism—"parks versus people" might be transformed into "peace parks."

In this 12th issue of the *Environmental Change and Security Program Report*, eight African leaders and scholars write about their continent's struggle with resource conflict—and the possibilities for peace that population and environment initiatives may hold. According to 2004 Nobel Laureate Wangari Maathai, poor governance and mismanagement of resources spur the violence that plagues many countries in Africa: "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." But she sees hope: "When we manage our resources sustainably and practice good governance we deliberately and consciously promote cultures of peace."

Another African leader, President Marc Ravalomanana of Madagascar, saw the devastation wrought by poverty and unsustainable population growth in his country, and dreamed of a different path: "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." Innovative programs like the U.S. Agency for

I don't need to read between the lines of endless reports to see the country's severe population, health, and environment challenges—they are visible in the protruding ribcages of the cattle and the barren eroding terraces in the nation's rural highlands.

International Development's "champion communities" help lay the foundation for economic growth and stability in Madagascar's rural villages by integrating reproductive health services and sound environmental management at the local level. In a few years, the average number of children per woman has decreased to one of the lowest levels in Africa.

Rapid population growth is taking a toll on Tanzania, where migration, urbanization, and increasing demand have intensified local conflicts over water in the already-stressed Pangani River basin. "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," says Milline Mbonile, who argues that resolving these conflicts requires understanding the socio-cultural context of the local communities—particularly the relationship between pastoralists and farmers—and increasing stakeholder involvement in water management.

The devastating civil conflict in the Democractic Republic of the Congo, "Africa's world war," was fueled by global demand for the country's enormous stores of valuable minerals and extensive forests. Instead of being engines of growth, these resources "have largely been to blame for most of the past and current misfortunes visited on the Congolese people," says John Katunga, who warns that without the help of international institutions and the U.S. government to develop "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."

Like the DRC, Nigeria has also suffered the effects of global demand for its resources—the oil industry's history of spills, lax environmental regulations, rent-seeking, and government complicity has severely degraded the rich Niger Delta. Kenneth Omeje sees the residents' "formidable struggle of unrelenting violent protests, including oil theft, pipeline sabotage, and kidnappings" as an attempt to capture the spoils of the oil business from the corrupt elites. To stop the cycle, he calls for international efforts that would hold the oil industry to standards of social and environmental responsibility; and disarm and demobilize all Niger Delta militias and anti-oil combatants. But, he cautions, "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."

Also in Nigeria, Anthony Nyong's study of the semi-arid northern region finds that as recurring droughts have become more intense and more destructive, "the line separating land that traditionally served the pastoralists and the sedentary farmers is no longer clear," leading to conflicts between these groups. He warns that global climate change may further change rainfall distribution and availability, thus "potentially further exacerbating conflict." As traditional methods of conflict resolution have been pushed aside in favor of the police and courts, conflicts between the farmers and the pastoralists have deepened. Nyong argues that indigenous methods of conflict resolution may offer contemporary policymakers "a bottom-up approach to conflict resolution and management."

Across sub-Saharan Africa, HIV/AIDS poses unique challenges to political stability, as Nana Poku reports: "The net effect of HIV/AIDS on the African state may be institutional fragility,

Lake Chamo, Nechisar National Park, Ethiopia (© Geoff Dabelko).

thus compromising its overall capacity to deal effectively with national emergencies, while increasing political instability." In the face of this devastating disease—the worst of which is yet to come—how can African states remain functional and stable? Poku recommends that national governments and international organizations work together to increase access to antiretroviral treatment and proactively respond to the changes facing labor markets and human resources.

Finally, Patricia Kameri-Mbote ends our report from Africa on a hopeful note. The Great Lakes Region—Burundi, the DRC, Kenya, Rwanda, Tanzania, Uganda, and Zambia—has been torn apart by decades of wars exacerbated by resource and population pressures. However, she says that these same resources "should be considered vehicles for peacebuilding, rather than solely sources of conflict." She proposes that the Great Lakes' region-wide peace process and its wealth of transboundary ecosystems make it a promising model for a "future worldwide initiative in environmental peacemaking."

But what are the conditions for a successful environmental peacemaking initiative? Alexander Carius points out that we know relatively little about how environmental cooperation could contribute to peacebuilding. Based on his analysis of cases in southern Africa, the Middle East, Latin America, and Central Asia, he pinpoints lessons learned, as well as shortcomings, and highlights areas for action and recommendations for development agencies. "To move forward, we need systematic assessments and a constructive dialogue with poliycmakers to make environmental peacemaking projects more effective."

In a graphic illustration of the links between population and conflict, Richard Cincotta and Elizabeth Leahy chart what they dub the "60-percent-under-30" benchmark: about 86 percent of all countries that experienced a new outbreak of civil conflict had age structures with 60 percent or more of the population younger than 30 years of age. They conclude that this "60-percent-under-30" benchmark could "serve as a means to identify and track a state's demographic risks of civil conflict." Policymakers could thus reduce future risks "by supporting programs and policies that promote advancement along the path of the demographic transition in countries with young age structures."

Young age structures were also the focus of the first meeting in a special series on population, health, and fragility convened by ECSP for the U.S. Agency for International

On the road south from Addis Ababa to Lake Langano, Ethiopia (© Geoff Dabelko).

Development. Speaking with Cincotta, Jack Goldstone urged Western development professionals to help countries achieve their "security demographic." Speakers from RAND revealed the results of their study of post-conflict reconstruction in seven countries, arguing that nation-building cannot succeed without at least partial success in building public health. But this success requires investment: reviewing best practices, Ronald Waldman noted that unless funding levels are increased, health systems will not help stabilize fragile environments. In a meeting reviewing recent programs in Afghanistan, Sallie Craig Huber observed that progress made in the health sector will help foster stability and strengthen the relationship between Afghanis and their government: "They'll feel that the government is working for them and that they have hope for their future and their children's future." Frederick "Skip" Burkle, the final speaker in the series, drew on his decades of experience in public health in fragile states to call for better ways to measure the true human cost of war, so that the lives lost through indirect causes will not "remain unseen, uncounted, and unnoticed."

As always, the *ECSP Report* includes reviews of recent publications on population, environment, and security. This edition's "dotPop" section gathers recent reports and data sources on the world's water crisis. Formerly a monthly feature in our e-newsletter *ECSP News*, dotPop now appears in our new blog, http://www.newsecuritybeat.blogspot.com, where you will also find frequently updated links to the latest news and reports on environmental security.

The intertwined environment-population-security challenges examined on these pages are daunting and sometimes difficult to grasp. Driving past mile after mile of Ethiopia's treeless "forests" gave me a dramatic snapshot of the scope of the problem. While no weapons were evident, I could see that the lack of sustainable livelihoods produces plenty of casualties without a single shot. Despite these sobering sights, the people I met gave me hope—particularly the energy and imagination of a small farmers' cooperative outside Addis Ababa. With some initial technical assistance from an Ethiopian NGO and the Packard Foundation, this 32-member group is undertaking reforestation projects, producing honey as an alternative livelihood, providing health and family planning services, and employing a more sustainable farming strategy. More efforts like these—and better awareness and promotion of them—could help turn deadly environments into safe, sustainable neighborhoods.

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.

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.

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

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.

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.

Note: This article originally appeared in the Fall 2006 issue of *WorldView,* a magazine about the less-developed countries where Peace Corps volunteers have served and is published by the nonprofit National Peace Corps Association for members and subscribers. See www.worldview magazine.com and www.peacecorpsconnect.org for more information.

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

JOHN KATUNGA

John Katunga Murhula is senior advisor for the East Africa Region for Catholic Relief Services. He was the acting executive director of the Nairobi Peace Initiative–Africa, a pan-African peace resource organization. In 2006, he was an Open Society Institute Africa Policy Scholar with the Africa Program of the Woodrow Wilson International Center for Scholars. (Photo: © David Hawxhurst, Woodrow Wilson Center)

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.

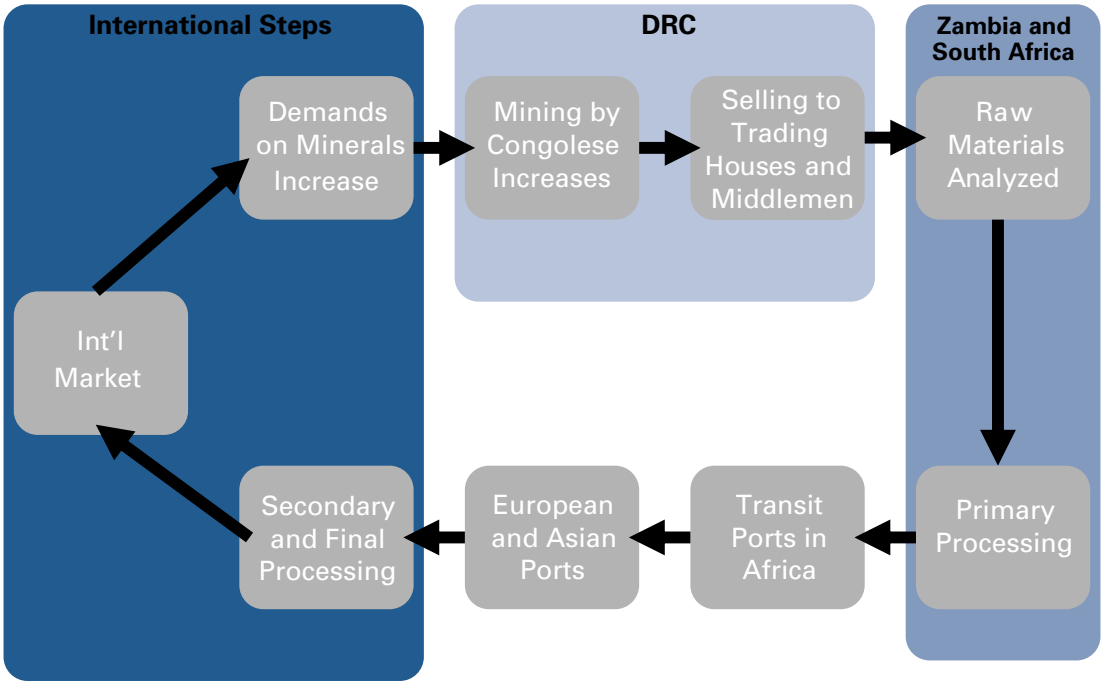
Some conflicts cannot be fully explained or properly addressed if environmental factors—especially those related to access and control of some strategic natural resources—are not integrated in the overall causal analysis. Failure to integrate these crucial dimensions leads to incomplete conflict resolution; 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

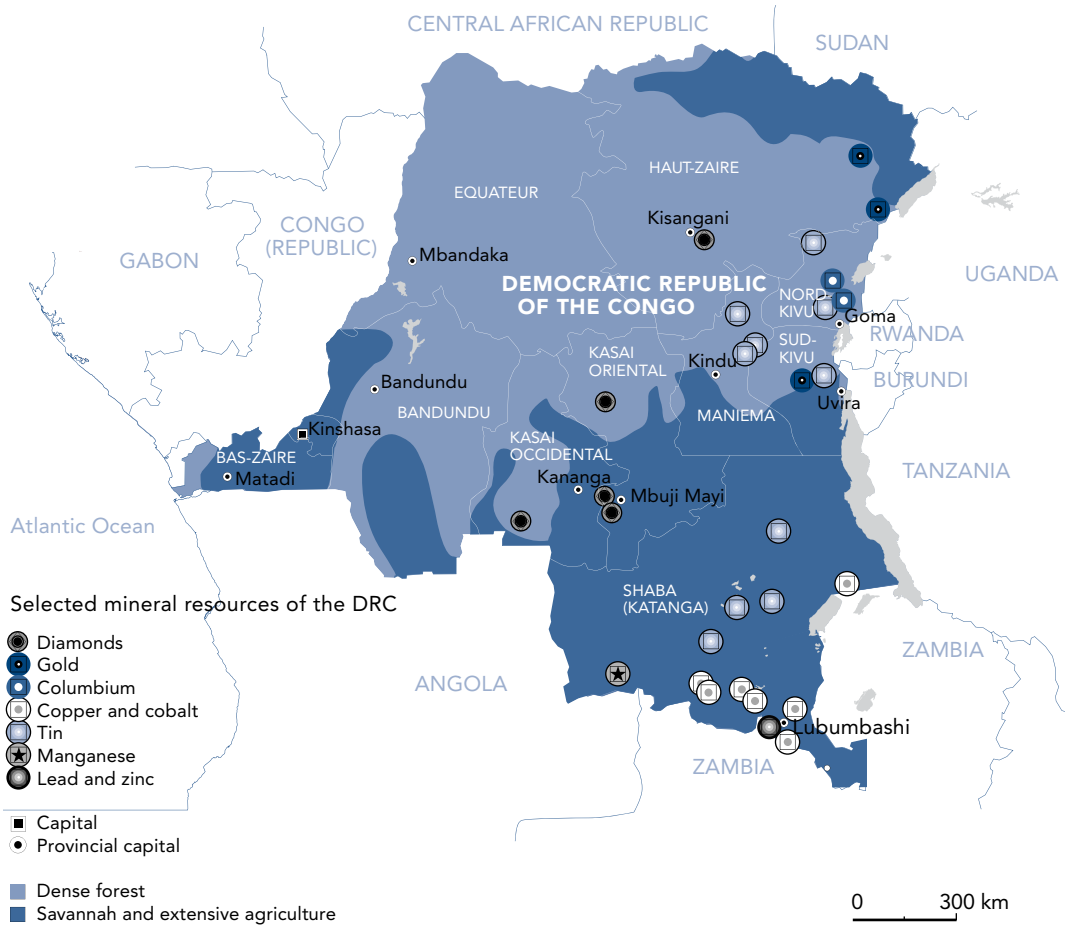
With so much wealth, why are the people of the DRC still so poor? Between 1990 and 2000, the country experienced severe inflation and falling production in manufacturing and agriculture. As a result, food prices spiked, the banking system collapsed, the deficit skyrocketed, and investors fled to more 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.

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.

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.

Milline J. Mbonile is a professor in the Department of Geography/Demographic Training Unit at the University of Dar es Salaam, Tanzania. He received a master's degree in demography from Cairo Demographic Center and a doctorate in population studies from the University of Liverpool. He has published extensively on population mobility, displaced and marginalized people, and population and development.

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.

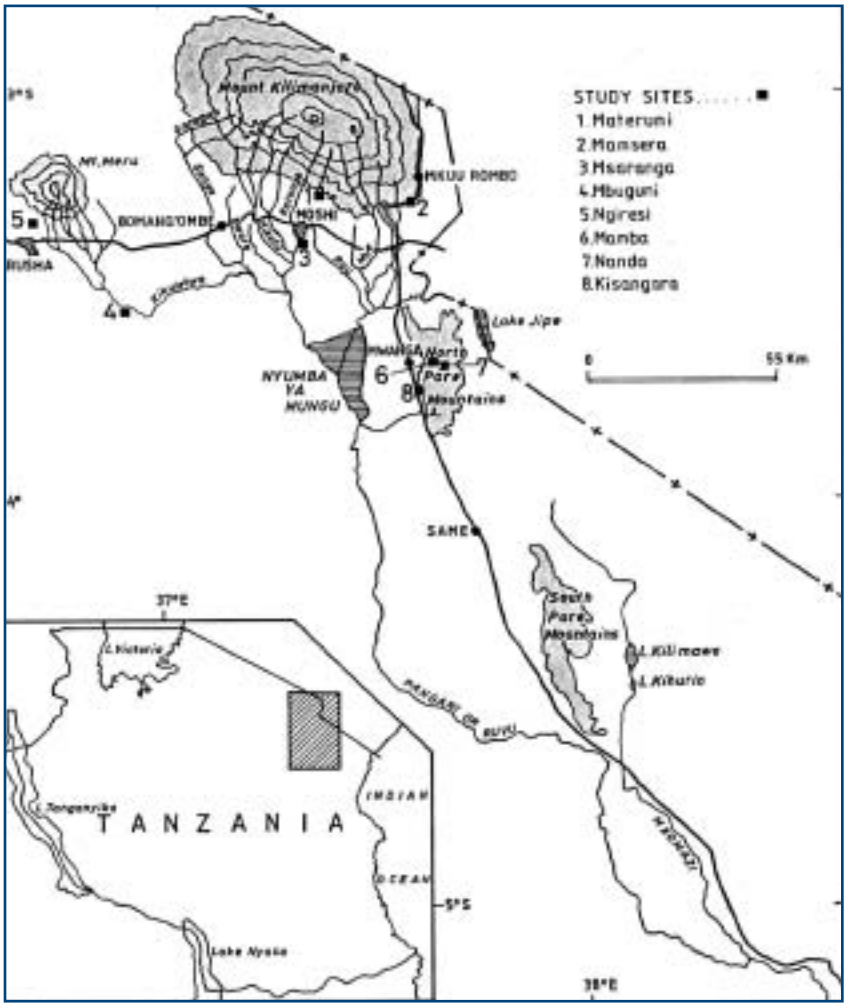
After Tanzania's independence in 1964, the establishment of national parks and game reserves like Tarangire, Kilimanjaro, Arusha, and Mkomazi took land from both agro-pastoralists and pastoralists, leading to massive displacement and migration. Large tracts of land were also appropriated for the Kilimanjaro 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 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

Location of the Study Area in the Pangani River Basin



Source: Mbonile (2005).

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

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).

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.

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

NANA K. POKU

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

Nana K. Poku is the John Ferguson Professor of African Studies at Bradford University, United Kingdom. He was the director of research for the Commission on HIV/AIDS and Governance in Africa. (Photo: © David Hawxhurst, Woodrow Wilson Center)

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.

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.

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.

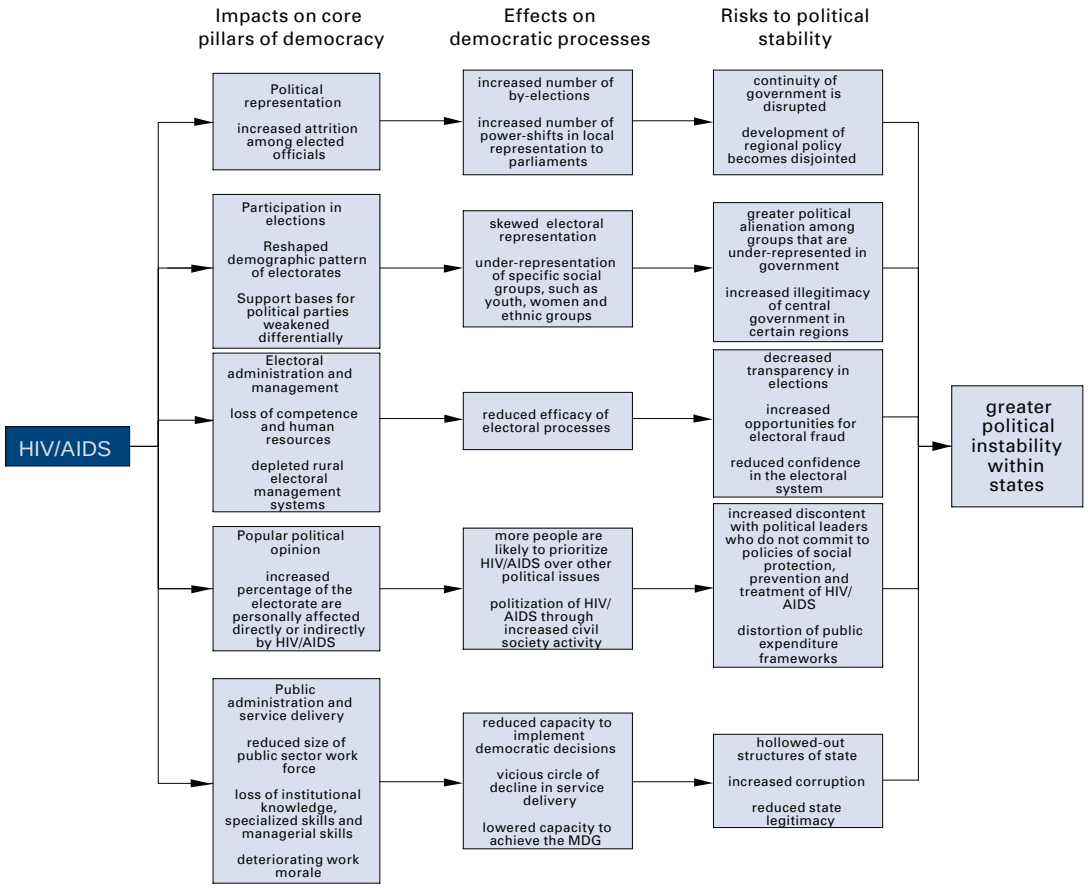
AIDS and Economic Development

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



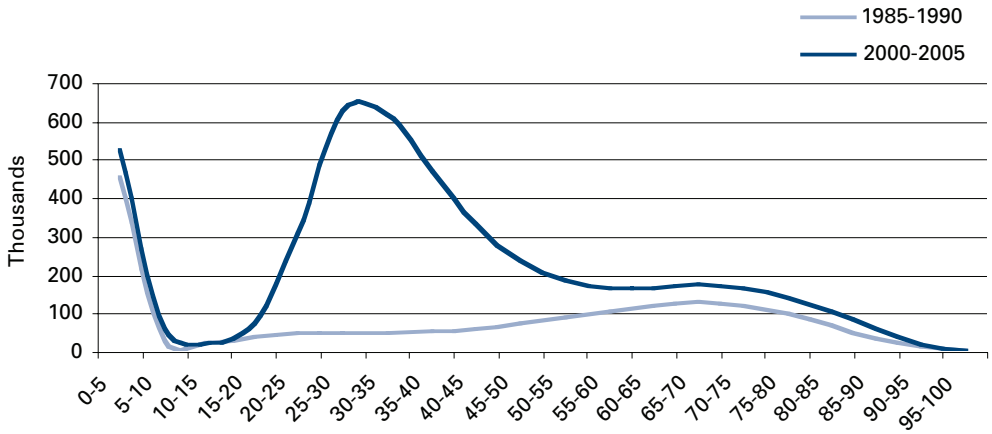
Source: Adapted from Poku (2006).

"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.

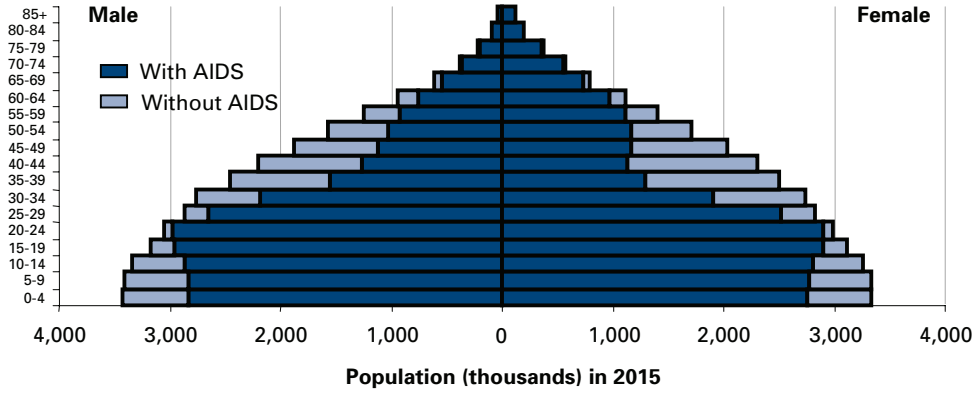
While all of the macroeconomic impacts are not immediately clear, we can anticipate that reductions in skilled human capacity due to declining life expectancy will eventually adversely affect economic output—which will be compounded by reduced efficiency. In high HIV-prevalence countries, we can also 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

ANTHONY NYONG

Anthony Nyong is a senior program specialist in climate change with International Development Research Centre (IDRC) in the Eastern and Southern Africa Regional Office in Nairobi, Kenya. Before joining IDRC, he was a professor of global environmental change and the director of the Centre for Environmental Resources and Hazards Research at the University of Jos, Nigeria. He is a coordinating lead author of the Africa chapter for the Intergovernmental Panel on Climate Change's (IPCC) *Fourth Assessment Report* and serves on the Scientific and Technical Advisory Panel of the Global Environment Facility. (Photo: © David Hawxhurst, Woodrow Wilson Center)

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.

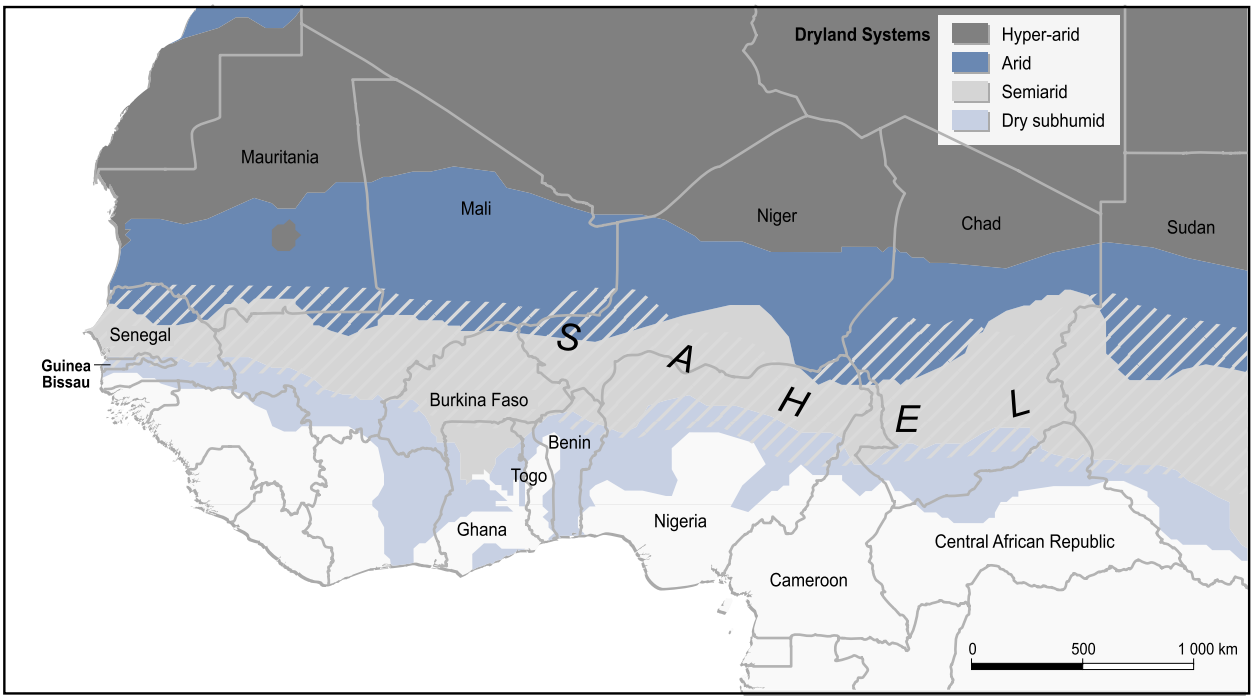
Only 8 percent of the land area in the West African Sahel is suitable for farming, and irrigated agriculture currently occupies about 5 percent of this land (Siebert et al., 2005; Lotsch, 2006). To meet the growing need for food and given the limited availability of cultivatable land, farmers are expanding 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).

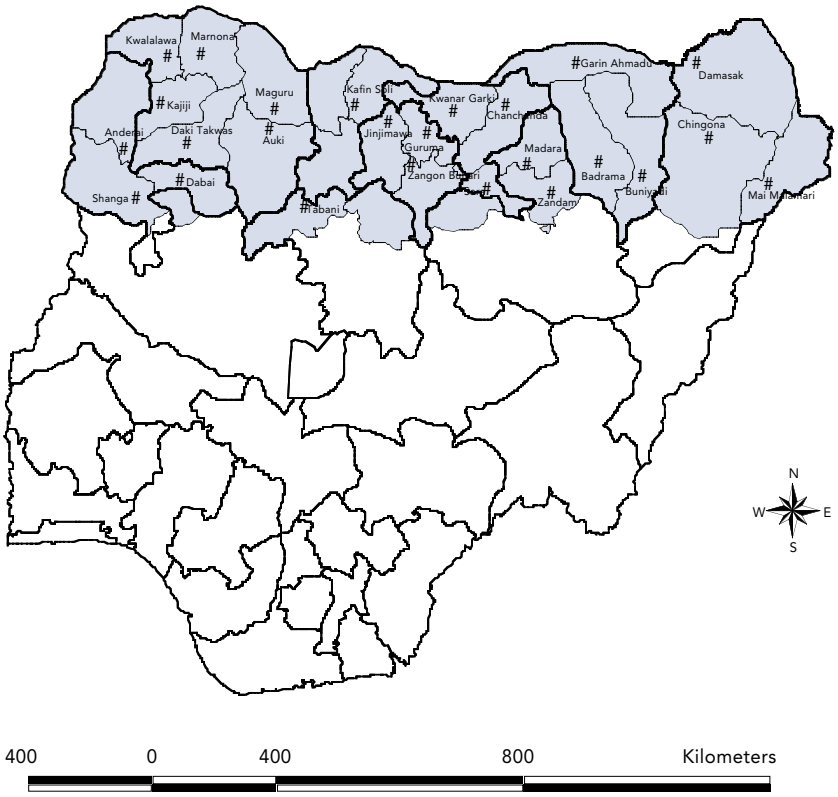
Although indigenous institutions have suffered and continue to suffer some erosion, this decline does not necessarily render them outdated. Thus, far from being anachronisms in today's world, indigenous institutions have much to offer contemporary policymakers searching for a bottom-up approach to conflict 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.

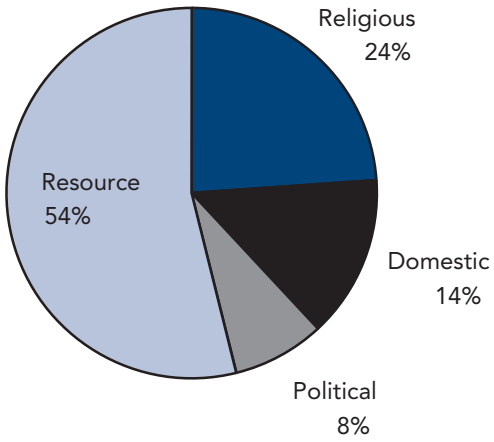
Conclusion

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

KENNETH OMEJE

Kenneth Omeje is a research fellow in the Africa Centre in the Department of Peace Studies at the University of Bradford in West Yorkshire, United Kingdom. He was previously a lecturer and research fellow in politics and development studies at the University of Nigeria, Nsukka, and has held visiting research fellowship positions in a number of centers of academic excellence, including the Center for African Studies at the University of Florida; the Department of Law of Keele University, United Kingdom; the Department of International Politics at the University of Wales, Aberystwyth; and the Institute of Higher Education at the University of Kassel, Germany.

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

PATRICIA KAMERI-MBOTE

Patricia Kameri-Mbote is a law researcher and teacher based in Nairobi. She is chair of the Department of Private Law at the University of Nairobi, and program director for the International Environmental Law Research Centre in Nairobi. She has also served as director of research at the African Centre for Technology Studies, Nairobi. She was the first chair of the Kenya Nile Discourse Forum, a network of civil society organizations working with other national discourse forums in the Nile River basin to influence development of projects and programs under the Nile Basin Initiative and other Nile-related programs. She was an Open Society Institute Africa Policy Scholar at the Woodrow Wilson Center in 2006. (Photo: © David Hawxhurst, Woodrow Wilson Center)

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

SPECIAL REPORT

Population Age Structure and Its Relation to Civil Conflict: A Graphic Metric

RICHARD P. CINCOTTA and ELIZABETH LEAHY

Richard P. Cincotta is a demographer and consultant whose research has focused on the course of the demographic transition and on patterns of human migration. His published work strives to characterize these trends and their relationships to natural resource dynamics, to human health trends, and to the political stability and legitimacy of states.

Elizabeth Leahy is a research assistant at Population Action International (PAI), where she researches international demographic trends and policy. She is the author of *The Shape of Things to Come: Why Age Structure Matters to a Safer, More Equitable World* (PAI, 2007). She is a graduate student in international affairs at George Washington University.

Recent studies suggest that a large "youth bulge"—a youthful population age structure—can increase the risk of the onset of civil conflict and political violence (Urdal, 2006, Cincotta et al., 2003). These studies exclude states with a recent history of civil conflict, reasoning that they are already highly vulnerable to persistent and re-emerging violence (Collier et al., 2002). Can these two quantifiable variables—population age structure and recent history of civil unrest—be used to project risks of civil conflict a decade into the future?

We conducted separate analyses of three decades—the 1970s, 1980s, and 1990s—using the UCDP/PRIO Armed Conflict Dataset, which identifies conflicts with at least 25 battle-related deaths per year (Gleditsch et al., 2002; UCDP/PRIO, 2006) and age-structural data from the UN Population Division (2005). Countries with average immigration or emigration rates exceeding 0.5 percent between 1970 and 2000 were removed, as were the five most populous countries (China, India, Indonesia, USSR/Russia, and the United States) and countries with populations less than 100,000.

Findings

- Of all countries that experienced civil conflict during the last five years of the prior decade, 76 percent experienced civil conflict for at least one year during the following decade. **Conclusion: Three-fourths of all countries with recent conflict will likely experience conflict in the next decade.**
- Of countries without recent civil conflict, 24 percent of all states with more than 60 percent of their population under 30 years of age (i.e., a young age structure) experienced at least one incident of civil conflict during the following decade. Among countries with less than 60 percent under 30 years of age, just 7 percent experienced civil conflict. **Conclusion: One-fourth of all non-conflict countries with young age structures will likely experience a new civil conflict during the next decade.**
- About 86 percent of all countries that experienced a *new* outbreak of civil conflict had age structures with 60 percent or more of the population younger than 30 years of age. Although country age structures in many regions matured between 1970 and 1999, this "outbreak benchmark" remained virtually constant. **Conclusion: This "60-percent-under-30" benchmark could serve as a means to identify and track a state's demographic risks of civil conflict** (see figures below).

Policy Implications

If these relationships accurately reflect some of the risk factors of civil conflict, future risks could be reduced by (a) supporting sustained efforts to mediate incipient civil conflicts; and (b) by supporting programs and policies that promote advancement along the path of the demographic transition in countries with young age structures.

Figure 1: Path of the Demographic Transition, 1970 and 2050

Each point represents a country's position, plotted in terms of the most mature (aged 60+ years) and least mature (aged 0 to 29 years) segments of the population. The demographic transition function (y = -20.47Ln(x) + 102.59) plots the average path of expected maturation of population age structures during the course of the demographic transition—the change from high birth/high death rates to low birth/low death rates.

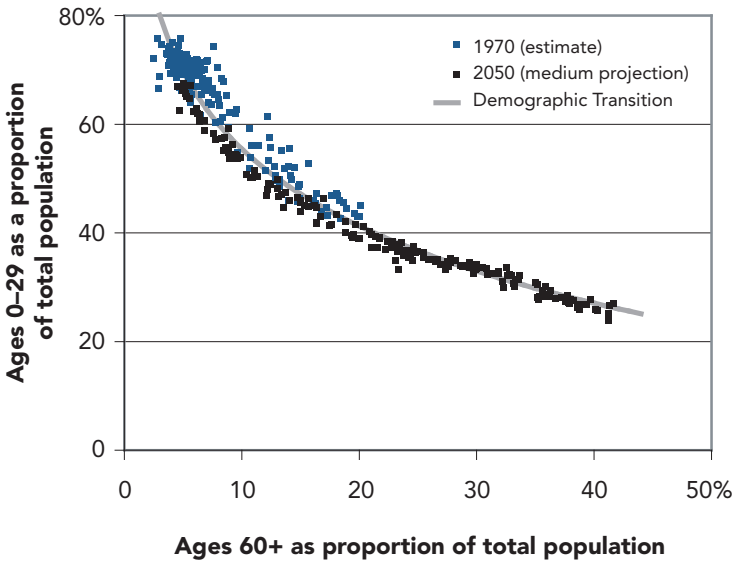


Figure 2: Distribution of Outbreaks of Civil Conflict, 1970-1999

The distribution of outbreaks of civil conflict (in countries without recent conflict) along the path of the demographic transition during three decades of analysis: 1970-79, 1980-89, 1990-99. Note the clustering of outbreaks in the region of youthful age structures.

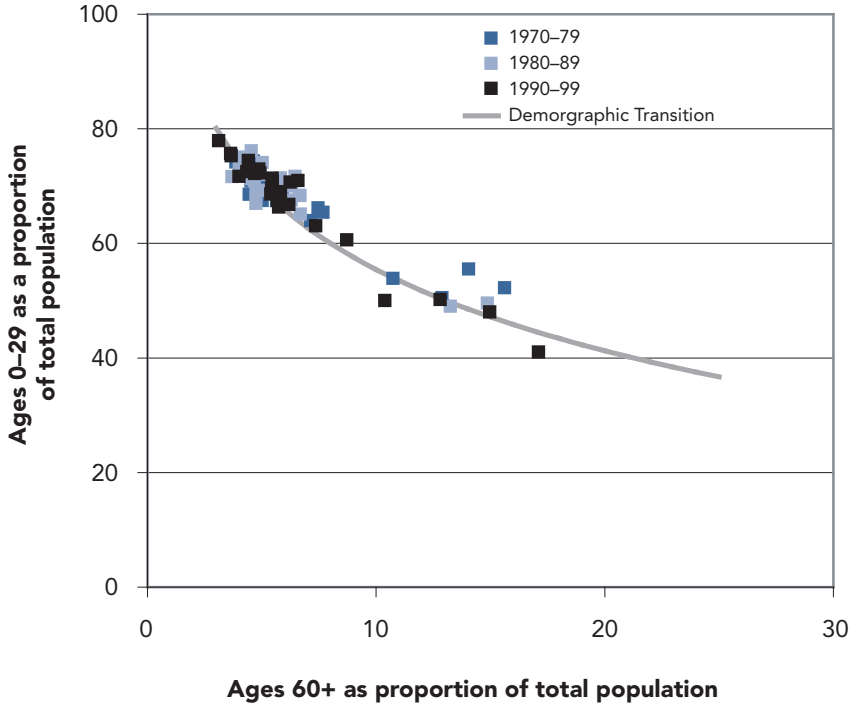
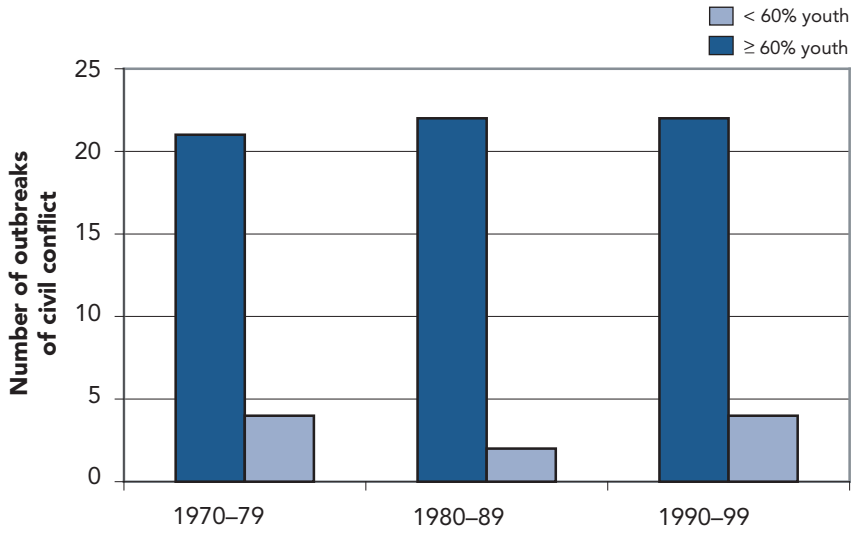
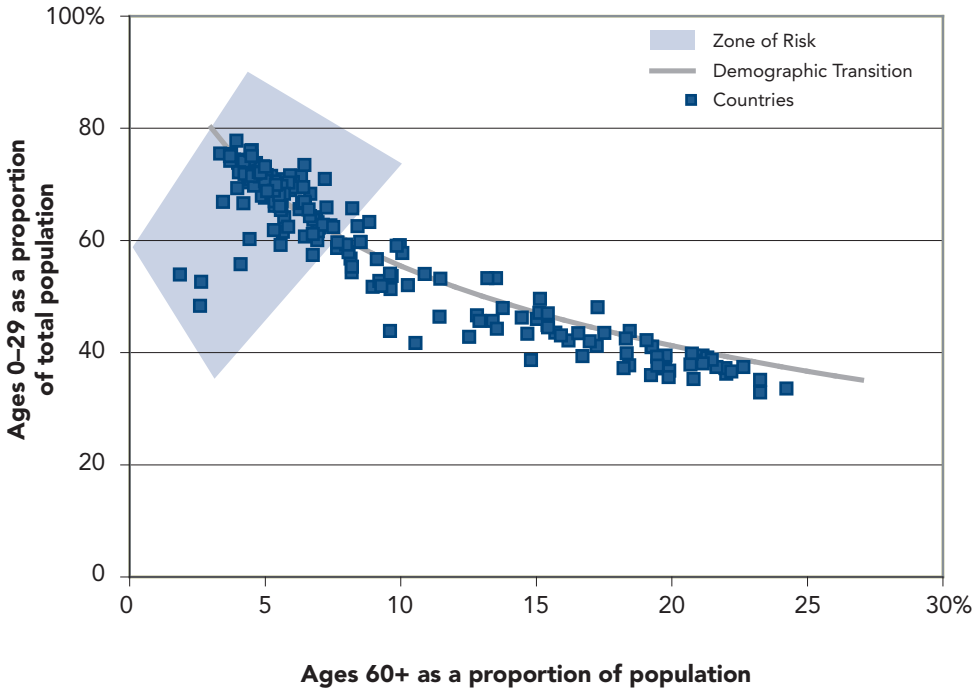


Figure 3: Number of Outbreaks of Civil Conflict by Age Structure, 1970-1999



The ratio between the number of countries that experienced outbreaks of civil conflict on the younger side of the outbreak benchmark—where 60 percent of the population is under age 30—ranged from 11:1 (1980-89) to 5.25:1 (1970-79).

Figure 4: Countries With Age-Structural Risks, 2005



The zone of greatest concentration of outbreaks of civil conflict is shaded, and lies among age structures that are younger than the outbreak benchmark—where 60 percent of the adult population is below the age of 30 years. Country positions on this graph are for 2005 (according to data from the UN Population Division, 2005). The majority of states in this zone are in sub-Saharan Africa and western Asia.

Countries With Very Young and Youthful Age Structures, 2005

Swaziland
Zimbabwe
Uganda
Rwanda
Zambia
Lesotho
Kenya
São Tomé and Principe
Burundi
Mali
Yemen
Burkina Faso
Botswana
Eritrea
Malawi
Liberia
Niger
Democratic Republic of the Congo
Angola
Congo
United Republic of Tanzania
Haiti
Cape Verde
Côte d'Ivoire
Senegal
Nigeria
Arab Republic
Syrian
Chad
Togo
Central African Republic
Nicaragua
Cameroon
Comoros
Maldives
Benin
Ethiopia
Mozambique
Solomon Islands
Guinea-Bissau
Timor-Leste
Afghanistan
Iran
Palestinian Territories
Guatemala
Namibia
Tajikistan
Somalia
Ghana
Honduras
Madagascar
Iraq
Djibouti
Equatorial Guinea
Laos
Micronesia
Mauritania
Gabon
Bhutan
Oman
Pakistan
Cambodia
Belize
Guinea
Sudan
Libya
Papua New Guinea
Jordan
Vanuatu
Nepal
Sierra Leone
Algeria
Mongolia
Paraguay
Uzbekistan
Philippines
Bangladesh
Tonga
Gambia
Turkmenistan
Egypt
Bolivia
El Salvador
Saudi Arabia
Dominican Republic
Morocco
South Africa
Kyrgyzstan
Peru
Samoa
Fiji

References

Cincotta, Richard P., Robert Engelman, & Daniele Anastasion. (2003). *The security demographic: Population and civil conflict after the cold war.* Washington, DC: Population Action International.

Collier, Paul, Anke Hoeffler, & Mans Söderbom. (2001). *On the duration of civil war.* Washington, DC: World Bank Development Research Group.

Gleditsch, Nils Petter, Peter Wallensteen, Mikael Eriksson, Margareta Sollenberg, & Håvard Strand (2002). "Armed conflict 1946-2001: A new dataset." *Journal of Peace Research 39*(5), 615-637.

UN Population Division. (2005). *World population prospects: 2004 revision.* New York: United Nations.

Uppsala Conflict Data Program (UCDP) & International Peace Research Institute, Oslo (PRIO). (2006). *UCDP/PRIO Armed Conflict Dataset codebook: Version 4-2006.* Oslo, Norway: UCDP & PRIO.

Urdal, Henrik. (2006). "A clash of generations? Youth bulges and political violence." *International Studies Quarterly 50*, 607-629.

Environmental Peacebuilding: Conditions for Success

ALEXANDER CARIUS

Since the beginning of this decade, the apocalyptic warnings of water wars and environmental refugees have been slowly giving way to a growing hope that the environment—more specifically, environmental cooperation—could promote stability and peace between parties in conflict. According to this theory, initiatives such as transboundary cooperation for environmental conservation (e.g., "peace parks"), international river basin management, regional marine agreements, and joint environmental monitoring programs could enhance cooperation between communities or countries.

Surprisingly, we know relatively little about the forms these initiatives may take, the constraints they may face, and the conditions under which they work best or could develop into broader forms of political cooperation. While a growing number of studies examine the relationship between environmental degradation and violent conflict, the equally important issue of how environmental cooperation could contribute to peacebuilding has rarely been subjected to systematic analysis. At this time, we do not have enough empirical evidence to substantiate the theory of environmental peacemaking.

This article seeks to systematize the study of environmental cooperation and to define its scope more clearly, by identifying the conditions under which environmental cooperation best facilitates conflict transformation and peacebuilding, and which forms of negotiation or stakeholder participation have been particularly successful.[1] I reviewed and evaluated past experiences to pinpoint the lessons learned, as well as shortcomings, and I highlight areas for action and recommendations for development agencies. I analyzed not only the existing literature but also an exemplary selection of studies on water cooperation and cooperation in nature conservation in southern Africa, the Middle East, Latin America, and Central Asia (see table). This article addresses the following questions:

- How and why does cooperation in shared natural resources lend itself to the prevention of armed conflicts and to building peace?
- Which political and social factors favor the evolution of environmental cooperation into a wider social and political peace process?
- Which conditions facilitate or hinder this development?
- Is it possible to estimate the impacts of transboundary environmental cooperation on peacebuilding and conflict prevention?
- Which methodological approaches are suitable for designing conflict-sensitive environmental and natural resource conservation projects within the framework of development cooperation?

Alexander Carius is the co-founder and co-director of Adelphi Research and Adelphi Consult. He specializes in international environmental policy, development policy, and foreign policy, and has led more than 100 national and international projects on environmental and environment-related policies. (Photo: © David Hawxhurst, Woodrow Wilson Center)

Table: Case Studies Analyzed

PROJECT/PROGRAM	INSTITUTIONS	COUNTRIES
Transboundary Biosphere Reserve: Altai Mountains	German Federal Agency for Nature Conservation http://www.bfn.de/	China, Kazakhstan, Mongolia, Russia
Ai-Ais Richtersveld Transfrontier Park http://www.environment.gov.za/ProjProg/TFCAs/artp.htm	Ministries of the environment of Namibia and South Africa	Namibia, South Africa
Regional Park W ECOPAS (Ecosystème protégés en Afrique sahélienne) http://www.parks.it/world/NE/parc.w/Eindex.html	Benin, Burkina Faso, Niger, European Union (EU); and funded by the European Development Fund	Benin, Burkina Faso, Niger
Great Limpopo Transfrontier Park http://www.greatlimpopopark.com/	Treaty between Mozambique, South Africa, Zimbabwe	Mozambique, South Africa, Zimbabwe
International Gorilla Conservation Programme (IGCP) http://www.igcp.org/	Democratic Republic of the Congo, Rwanda, Uganda; and implemented by African Wildlife Foundation, Flora & Fauna International, World Wide Fund for Nature (East Africa) through IGCP	Democratic Republic of the Congo, Rwanda, Uganda
Sustainable Development of Mountain Regions of the Caucasus – Local Agenda 21 http://rec.caucasus.net/recc/index.php?f=15&su=150100130&t=index	The German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety; The Ministry for the Environment, Agriculture, and Forestry of the Principality of Liechtenstein	Armenia, Azerbaijan, Georgia, Russian Federation
Kgalagadi Transfrontier Park http://www.sanparks.org/parks/kgalagadi/	South African National Parks Board (SANParks), Department of Wildlife and National Parks of Botswana, USAID Regional Center for Southern Africa, Peace Park Foundation	Botswana, South Africa
Podyji and Thayatal National Parks http://www.nppodyji.cz/_E_PODYJ.HTM http://www.thayatal.com/thayatal/en/default.asp?id=30929	Ministry of Environment of the Czech Republic, Ministry of Environment of Austria	Austria, Czech Republic
Selous Conservation Programme (SCP) http://wildlife-programme.gtz.de/wildlife/scp.html	German Technical Cooperation (GTZ), Tanzanian Wildlife Division	Mozambique, Tanzania
Selous-Niassa Wildlife Corridor Research Project http://www.selous-niassa-corridor.org/	GTZ; funded by German government under its Tropical Ecology Support Programme	Mozambique, Tanzania
Trifinio Plan http://www.oas.org/dsd/publications/Unit/oea73b/ch01.htm	Organization of American States, Inter-American Institute of Cooperation for Agriculture	El Salvador, Guatemala, Honduras
Nile Basin Initiative www.nilebasin.org	World Bank, UN Development Programme (UNDP), Canadian International Development Agency (CIDA), and others	Egypt, Ethiopia, Kenya, Democratic Republic of the Congo, Rwanda, Somalia, Sudan, Tanzania, Uganda

(continued on next page)

PROJECT/PROGRAM	INSTITUTIONS	COUNTRIES
Nile Basin Discourse www.nilebasindiscourse.org	Funding from UK's Department for International Development (DFID); technical assistance and support from IUCN-The World Conservation Union and the Overseas Development Institute	Egypt, Ethiopia, Kenya, Democratic Republic of the Congo, Rwanda, Somalia, Sudan, Tanzania, Uganda
Regional Water Data Banks Project www.exact-me.org	Financial and technical assistance from the EU, France, The Netherlands, and USAID	Israel, Jordan, Palestinian Territories
Good Water Neighbors http://www.foeme.org/projects.php?ind=32	Friends of the Earth Middle East; with financial assistance from the EU, the U.S. government Wye River Program, the Richard and Rhoda Goldman Fund, and the British government's Global Opportunities Fund	Israel, Jordan, Palestinian Territories
OKACOM (Permanent Okavango River Basin Water Commission) http://www.okacom.org/index.htm	Governments of Angola, Botswana, Namibia; with support from Kalahari Conservation Society, Namibia Nature Foundation, ACADIR of Angola, Food & Agriculture Organization (FAO), Swedish International Development Cooperation Agency (SIDA), USAID, and UNDP	Angola, Botswana, Namibia
SADC Protocol on Shared Watercourse Systems http://www.sadc.int/english/documents/legal/protocols/shared_watercourse_revised.php	Southern African Development Cooperation (SADC)	Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe

Approaches to Environmental Peacebuilding

Most ecological peace initiatives fall into one of three partly overlapping categories (Carius & Dabelko, 2004; Conca, Carius, & Dabelko, 2005):

- Initiatives to prevent conflicts that are directly related to the environment;
- Efforts to initiate and sustain a dialogue on transboundary environmental cooperation between parties to a conflict; and
- Initiatives that seek a lasting peace by promoting conditions for sustainable development.

Preventing conflicts directly related to the environment

The most direct means of environmental peacemaking are measures to prevent environmentally induced conflicts (UN Environment Programme [UNEP], 2004; Conca, Carius, & Dabelko, 2005). Environmental cooperation could play a role in preventing violence that erupts due to the uncontrolled exploitation of natural resources, the destruction of ecosystems, or the devastation of livelihoods based on natural resources. Most of the research that establishes a link between environmental degradation and violent conflict focuses on two solutions: reducing the pressure on resources on which people are economically dependent; and strengthening the institutional capacities to respond to environmental challenges.

Environmental cooperation could also help assuage the anger of victims of environmental injustice, who are often already socially and economically disadvantaged. Latent environmental problems may combine with material insecurity and perceived marginalization to create an explosive situation, especially where ethnic identity determines access to political and economic opportunities. The most heavily polluted industrial regions in the post-Soviet Baltic States, for instance, have a largely ethnic Russian population, generating a volatile mix of burgeoning ethnic and national identity, mounting social discrimination, and environ-

mental mismanagement. Active environmental cooperation could help alleviate an important source of this festering discontent.

Using environmental cooperation as a platform for dialogue

A second approach to environmental peacebuilding seeks to address conflicts that have no specific environmental cause. These initiatives attempt to create peace by bringing conflicting parties together to reach cooperative solutions to common environmental challenges. Opponents may agree to establish a dialogue on shared environmental issues when other political and diplomatic approaches have failed. In many instances, hostile—if not openly warring—countries have found that environmental issues are one of the few topics on which they can sustain an ongoing dialogue.

In addition, common environmental challenges can also be used to replace distrust, suspicion, and divergent interests with a shared knowledge base and common goals, and thus could transform relationships marred by conflict. Fragmentary or unreliable information on technically complex issues can intensify mutual distrust between parties, but building a shared knowledge base can overcome this shortcoming (Turton et al., 2006)

One of the most complex, unresolved conflicts in the highly unstable Caucasus region is Armenia and Azerbaijan's dispute over Nagorny-Karabakh. In the fall of 2000, the government of Georgia convinced Armenia and Azerbaijan to set up a trilateral biosphere reserve in the southern Caucasus region. The organizers hope that this regional environmental cooperation will not only strengthen nature conservation and sustainable development, but also promote political stability. Although Armenia and Azerbaijan are not yet ready to cooperate directly with each other, the agreement calls for them to create national biosphere reserves, which will ultimately be integrated into a single conservation area. The first steps of this long-term project are gathering data, developing capacities for action, and enhancing environmental awareness in the region. Armenia and Azerbaijan have asked UNEP to conduct an independent, international environmental assessment of Nagorny-Karabakh; the objective data could lay the foundation for future cooperation (UN Development Programme [UNDP], UNEP, & Organization for Security and Cooperation in Europe [OSCE], 2004).

A similar attempt has been made in Kashmir, over which India and Pakistan have been fighting since the end of British colonial rule. Some international environmentalists have proposed establishing a peace park in the Karakoram mountains lying between India and Pakistan in the western Himalayas, in the hopes that the joint management of this unique glacial region—in which more soldiers are estimated to have died from the cold and altitude than from enemy fire (see Haider, 2005)—could help defuse this deadly border conflict. Of course, a joint environmental program in a remote, barely inhabited region will not fundamentally alter the structural dynamics of the India-Pakistan conflict. Nevertheless, given the current truce and the recent thawing in relations between the two countries, cross-border activities of this kind may play an important role in conflict transformation.

Promoting sustainable development to achieve a durable peace

A third approach is based on the premise that long-term and comprehensive sustainability is a prerequisite for a lasting peace. The joint management of shared resources can be not only a way to keep both parties talking, but also the key to negotiating a resolution. For example, even if water scarcity is not the cause of the conflict between Israelis and Palestinians, a solution to their shared water problem is necessary for a peaceful resolution. During the Oslo Peace Accord negotiations, a special negotiating group was set up specifically to discuss water. (A similar group was established during the 2004 negotiations between India and Pakistan.) Irrespective of whether water is the cause of conflict or has merely aggravated an existing conflict, no lasting peace is possible in the Middle East without a sustainable and joint water policy (Wolf, 2001).

Tapping the Potential of Ecosystems: Why Use the Environment to Build Peace?

Ecological interdependence demands cooperative action

As a mechanism for peacebuilding and conflict resolution, the environment has useful—perhaps even unique—qualities. The solutions to environmental problems, which ignore political borders, require a long-term perspective; encourage participation by local and non-governmental organizations (NGOs); help build administrative, economic, and social capacities for action; and help forge common bonds that transcend economic polarization.

Addressing environmental problems frequently requires taking long-term preventive measures. Such measures must also be flexible enough to respond to unexpected, abrupt, and critical changes. Institutions devoted to environmental cooperation can provide decision-makers with a long-term framework for action in which future benefits are given greater priority over short-term interests. We can see a trend in this direction in water cooperation efforts: In recent years, the number of basin-sharing agreements and permanent river commissions has risen, providing riparian countries with platforms for sharing information, collecting data, and developing long-term perspectives on joint river basin management (Conca, Wu, & Neukirchen, 2003).

Environmental issues encourage people to cooperate at the societal level, as well as the international. Social interest groups can use this mutual ecological dependence to facilitate cooperation across territorial borders. This is often the first step toward dialogue, which can be difficult to initiate through official political channels. Over time, regular interaction between academia and civil society actors can help lay the foundation for mutual trust and implicit political cooperation. For example, despite the daily battles on the streets of the West Bank and Gaza, Palestinians and Israelis continue to manage their shared water resources through informal and technical dialogue.

As environmental cooperation develops, and societal and political stakeholders come together in systematic negotiations, such efforts can build trust, initiate cooperative action, and encourage the creation of a common regional identity, as well as establish mutually recognized rights and expectations (Adler, 1997; Adler & Barnett, 1998; Nagler, 1999).

Environmental policy at the national (as well as the regional and international) level is very closely related to the modernization of the state and society. Class action suits, access to environmental information and education, and public participation in infrastructure projects can play significant roles in strengthening civil society and democratizing and empowering societies, as evidenced by the democratization and economic transformation of Central and Eastern Europe, as well as the states of the former Soviet Union (Carius, Von Homeyer, & Bär, et al., 2000). Moreover, following the major environmental summits in Stockholm (1972), Rio de Janeiro (1992), and Johannesburg (2002), sustainability initiatives and strategies have led to more long-term and innovative approaches at the political and societal levels in several countries, including many developing countries and countries at risk of conflict.

Due to the intricate interdependencies of ecosystems, participating stakeholder groups can benefit from cooperative measures, even if at first their interests appear to be asymmetrical. For example, the environmental problems of international rivers often lead to conflicts of interest between upstream and downstream riparians (states bordering rivers), seriously complicating cooperation. Most international water agreements are therefore based on the premise that upstream and downstream states have fundamentally different interests in their shared resource.

These regional relationships are further complicated by many simultaneous, overlapping ecological interactions. For instance, upstream riparians can be "downstream" of other environmental aspects. Japan is situated downstream of wind currents from China's heavily polluted industrial belt, but both countries

In many instances, hostile—if not openly warring—countries have found that environmental issues are one of the few topics on which they can sustain an ongoing dialogue.

share a regional sea. The United States is upstream of Mexico on the Colorado River, but it is "downstream" of pollution from the *maquiladora* plants along the U.S.-Mexico border. However, rather than forestalling cooperation, these complex mutual interdependencies open up additional opportunities to transform environmental problems into durable forms of environmental cooperation.

Focus on water peacemaking

Cooperative water management initiatives—as they are the most available and analyzed examples—may best demonstrate the potential of efforts to use environmental management to build peace. Water is an essential commodity, indispensable for the well-being of humanity, the environment, and the economy. Households, agriculture, industry, electricity generation, and ecosystems all require it in timely and adequate quantities and quality, so stakeholders must balance competing interests. The hydrologic cycle connects not only different sectors, but also different regions and countries, which share the impacts of water use and water pollution across national borders. Dependence on the same water resources can create communities out of diverse groups of users and stakeholders, transcending conflicting economic interests and fostering cooperative management, thereby generating advantages for all participants. Some researchers have identified cooperation over water resources as a highly promising approach to peacebuilding because riparian countries are willing to enter into lengthy and complex negotiations so as to benefit from mutual development of water resources (Delli Priscoli & Wolf, 2007; Dinar & Tusak Loehman, 1995).

Through history, humankind has found ways to deal with water scarcity and cooperated to manage shared water resources. Water has helped pave the way for greater trust and cooperation and also helped prevent conflicts in heavily disputed river basins. On balance, international water disputes are usually resolved in a cooperative manner, even between hostile states and even when other contentious issues erupt into conflict. The bitterest enemies have entered into water treaties or are negotiating such agreements. The institutions they have established have often proved to be surprisingly stable, even when political relations are highly strained (e.g., the Mekong River Commission comprising Cambodia, Laos, Thailand, and Vietnam; "picnic table talks" between Israel and Jordan; and the Indus Commission between India and Pakistan).

In some cases (e.g., Israel-Palestine), water problems offer one of the few chances for cooperative dialogue in otherwise heated bilateral conflicts. In other political hotspots, water is a key component of regional development negotiations (see for example, the Southern African Development Community [SADC], the Baltic states, or the Trifinio region in Central America), which are indirect strategies of conflict prevention.

More research in this area is needed to better understand how water management can serve as a cornerstone for confidence-building and as a potential pathway to peace. If we can improve our understanding of the conditions under which water can lead to conflicts or promote cooperation, then mutually beneficial cooperation over water resources can be employed in a more focused manner to prevent conflict and promote sustainable peace between states and social groups.

Political and Social Conditions Necessary for Environmental Cooperation to Facilitate Peacebuilding

Environmental cooperation as an incentive

Mutual dependencies in global politics serve to strengthen peace. However, mutual dependencies that are primarily rooted in economic and financial ties can also lead to severe polarization, as the massive protests against economic globalization have demonstrated. Environmental cooperation is a serious option for building cross-border collaboration at a level removed from the narrow and frequently divisive sphere

of economic relations. Transboundary environmental cooperation could, in the long term, lead to a broader understanding of geographical relationships and communities, thereby replacing the traditional concept of a mutually exclusive, politically defined identity with one of an environmental community.

The exchange of information or environmental agreements alone will not result in peace. Yet such efforts can provide the initial impetus for broader cooperation between conflicting parties. The Trifinio Plan, for example, represents a framework for broad regional integration in Central America following two decades of civil wars in the region (López, 2004). This process began as a technical cooperation agreement in 1986 among Guatemala, El Salvador, Honduras, the Organization of American States (OAS), and the Inter-American Institute of Cooperation for Agriculture. The first joint activity was a study of three transboundary watersheds straddling the borders of the three participating countries, followed by a joint pilot project in the border region. The Trifinio Plan catalyzed further cooperation, enhancing existing cross-border economic ties, promoting intergovernmental dialogue, and building confidence among the countries. One of the plan's principal objectives is to remedy the underlying cause of many conflicts in the border region, namely the social and economic isolation of these countries.

In southern Africa, the end of armed conflict paved the way for environmental cooperation, which in turn encouraged the region's economic development. Several intergovernmental river basin agreements were concluded in the 1970s and 1980s, when numerous local wars were raging in the region (among them the anti-apartheid struggle in South Africa and the civil wars in Mozambique and Angola). Although the negotiations were protracted, the agreements nevertheless marked rare moments of peaceful cooperation. Today, water cooperation is one of the pillars of regional cooperation. In fact, the Protocol on Shared Watercourse Systems of 1995 was the first protocol signed under the auspices of SADC (Wolf et al., 2005).

Along the Nile River, all 10 riparian countries are currently participating in the Nile Basin Initiative, high-level governmental negotiations on the development of the basin, despite the shrill war rhetoric that characterizes public relations between the upstream and downstream riparians. The riparian countries have a common vision of achieving the sustainable socio-economic development of the region by equitably using the shared resources of the Nile basin.

We can only assume the conditions under which the joint management of water resources can contribute to peace, since we lack detailed case studies addressing this question, as well as established methods of evaluation. In the three regions discussed above (Central America, SADC, and the Nile River basin), water cooperation has had a positive impact on peacebuilding. The common aspects in these three cases provide some clues to the conducive conditions:

1. In all three regions, the most violent phase of the conflicts between the countries had ended, which allowed cooperation to take place at the highest political level. SADC and the Trifinio Plan provide overarching political frameworks, which benefit transboundary cooperation arrangements.
2. Cooperation was institutionalized in all three regions. In the Trifinio region, the institutional framework is provided by the Trilateral Committee; in SADC, the Protocol on Shared Watercourse Systems calls for a river basin commission; while the Nile Basin Initiative and transitional intergovernmental institutions (Nile Council of Ministers and Nile Technical Advisory Committee) facilitate cooperation among the Nile riparians.
3. In the Trifinio region, as well as the Nile basin, stakeholder participation has been institutionalized. Even in the SADC region, mechanisms for stakeholder participation are a typical component of river basin organizations. Participation promotes cooperation at the levels of both official politics and civil society, which in

turn lends legitimacy to the decisions. Water cooperation in all three cases will continue to explicitly drive the regions' economic development.

Transforming environmental cooperation into political cooperation

One of the obvious shortcomings of environmental peacemaking has been its inability to transform environmental cooperation into broader forms of political cooperation and initiate a social and political dialogue going beyond environmental aspects. In this case, there are fundamental differences between transboundary water and nature conservation projects. In transboundary water projects, the conflict element or peacebuilding impact is to some extent explicitly articulated, while transboundary cooperation in nature conservation tends to focus far more on preserving biodiversity and natural landscapes than on conflict prevention. Nevertheless, cooperation in nature conservation has at times been specifically employed as a mechanism for peacebuilding or for creating political stability in conflict or crisis regions.

"Peace parks" create ecological buffer zones between conflicting parties that transcend political borders. In 2001, there were 169 nature conservation areas in close proximity to border regions in 113 countries worldwide (Zbicz, 2001). Examples include the disputed border region of Cordillera del Condor between Peru and Ecuador, the proposed peace park in the demilitarized zone between North and South Korea, and a number of transboundary nature conservation areas in southern Africa (see map). These parks can help defuse political tensions and promote regional security, sustainable natural resource management, and economic development in their eco-regions, as well as the protection and preservation of cultural diversity. Over and above nature conservation, they facilitate a step-by-step reconciliation between conflicting parties on issues that are generally less politicized and therefore less contentious.

In practice, however, nature conservation cooperation hits a ceiling when environmental policy is confronted with foreign and security policy considerations that it cannot explicitly address. At this point, its scope is clearly still limited. Cooperation in nature conservation could be part of a comprehensive regional strategy for building and consolidating peace that also includes promoting cultural, economic, and social development. Existing nature conservation conventions have so far not included any conflict prevention norms; moreover, in practice, nature conservation projects are by no means free of conflict. The opposing interests of different user groups can impede political reconciliation. Environmental and social interests may even clash when it comes to the utilization of natural spaces; for example, elephant corridors may conflict with land used by local human populations.

Environmental conservation projects in general, and peace parks in particular, may not be able to end existing border conflicts. However, they do promote communication and cooperation between conflicting parties—the first stage in a peace process—by providing an institutionalized platform for communication and mechanisms for collecting and processing data, which results in a phased rapprochement between formerly hostile states or social groups. In the long term, such projects can help improve the living conditions of local communities and promote social, economic, and political development as a corollary of environmental conservation efforts.

Illustrative cases

Water cooperation in Central Asia

Most of the transboundary water protection projects in the five Central Asian republics (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan) were motivated by conflict prevention and peace considerations. The exact number of projects is not known, but it is likely to exceed 500. Projects cover the spectrum, ranging from collecting data to jointly monitoring trends in environmental quality, to working on bilateral and multilateral transboundary environmental agreements. These diverse initiatives are supported by additional

projects targeted at strengthening human rights, promoting democratic structures in society, combating corruption, reducing poverty, and promoting economic development. So far there has been no systematic study of the impact of these initiatives and projects on crises and peace processes (Carius, Feil, & Tänzler, 2003).

Water cooperation in the Middle East

The "Good Water Neighbors" project of Friends of the Earth Middle East (FoEME), initiated in 2001, is an example of successful bottom-up transboundary environmental cooperation in a conflict zone.[2] Since 2001, 17 municipalities have joined the initiative to conduct joint water and waste management projects among neighboring communities in Israel, Jordan, and the Palestinian territories and to help raise awareness on environmental issues across borders. In January 2007, leaders from Mu'az Bin Jabal (Jordan), the Jordan Valley Regional Council (Israel), and Beit Shean Valley Regional Council (Israel) signed agreements to plan a transboundary peace park that will include a bird sanctuary, eco-lodges, and a visitor's center. Such cooperative efforts are facilitated by FoEME's local experts and the negotiations are formalized in bilateral agreements. However, this bottom-up program needs financial and political support by international organizations and governments to initiate and facilitate a policy dialogue to attain the top-level attention it deserves.

Cooperation in nature conservation in the southern Caucasus

A pilot project jointly funded by the governments of Germany and Liechtenstein seeks to transfer the experiences of mountain partnerships under the Alpine Convention to the southern Caucasus region by establishing a cross-border alliance of mountain villages in Azerbaijan, Armenia, Georgia, and the Russian Federation. Sustainable development projects—focusing on resource conservation and sustainable energy generation—will be implemented in close cooperation with eight village communities. Over the long term, the mountain partnerships seek to improve living conditions and combat the causes of migration by creating alternative development and income opportunities for marginalized groups. These efforts may also help combat the rising recruitment by terrorist organizations from the northern Caucasus (BMU, 2004).

The project will analyze the local situation, create a database on the status and development of the Caucasus mountain region, organize the first training modules on sustainable development, and initiate close cooperation with local administrative units, and later, with the national governments. The project did not pursue participation by the four countries' federal governments so as not to jeopardize cooperation at the local level due to the continuing conflict between Armenia and Azerbaijan. The actual dimensions of the regional conflict have not been explicitly articulated, and the project does not plan to assess its impacts on conflict and peacebuilding, even though the conflict was part of the project's rationale. It is ironic that sometimes environmental peacemaking efforts are only successful if they are not explicitly called "peacemaking" projects.

Cooperation in nature conservation in southern Africa

The peace parks in southern Africa have proved largely successful, compared to similar ventures elsewhere, because they go beyond nature conservation and are embedded in the region's economic and political integration (i.e., SADC). These Transfrontier Conservation Areas (TFCAs) are jointly managed by most of the participating governments in accordance with multilateral agreements established by the Peace Park Foundation (PPF).[3] The 10 TFCAs, which are funded and coordinated by PPF, facilitate the integrated management of large protected areas and chief migratory species, as well as compliance with the relevant international treaty obligations (e.g., the Convention on Biological Diversity and the Ramsar Convention on Wetlands). In the future, transboundary nature conservation areas will also play important roles in creating

Even if water scarcity is not the cause of the conflict between Israelis and Palestinians, a solution to their shared water problem is necessary for a peaceful resolution.

alternative sources of income, helping to reduce poverty in these largely rural and infrastructurally weak regions (Samimi & Nüsser, 2006). Offering alternative incomes to local populations is key to bridging the conflicting economic interests of local inhabitants and nature conservation efforts.

Case conclusions

These cases demonstrate the fundamental complexities that arise when transboundary environmental projects are linked with conflict resolution and peace objectives. The conflict dimension provides political legitimacy for the initiatives at the program level or within the framework of sector or country strategies. However, the projects can play only a limited role in peacebuilding if the results do not reach the agendas of governments and international or regional institutions. Moreover, the peacebuilding impact of transboundary environmental projects can be assessed only if methods of estimating impacts were included in project design and during implementation.

Cooperative mechanisms in the fields of water and nature conservation can successfully build stable cooperative structures if they are part of a wider political and economic process of integration, and if norms are established and implemented through bilateral and multilateral agreements. The PPF in southern Africa, and its institutionalization within the SADC framework, have demonstrated the importance of creating an enabling environment. Efforts to build water cooperation in the Middle East emphasize the importance of external facilitators and bottom-up approaches.

The efforts of the Environment and Security Initiative (ENVSEC) demonstrate that environmental institutions alone cannot push the transition from environmental cooperation to wider political cooperation. Jointly established by the OSCE, UNEP, and UNDP in 2002, ENVSEC pools the resources and mandates of these organizations to propose solutions for impending environmental conflicts and identifies opportunities for environmental cooperation. ENVSEC integrates political and social stakeholders outside the narrow environmental policy field, including the security and foreign policy community, which is a key requirement if transboundary environmental projects are to make the transition out of the environmental niche. However, the impact of the initiative has to date remained limited due to lack of follow up (Lafontaine, 2006).

Institutional Requirements and Constraints: Water Peacemaking

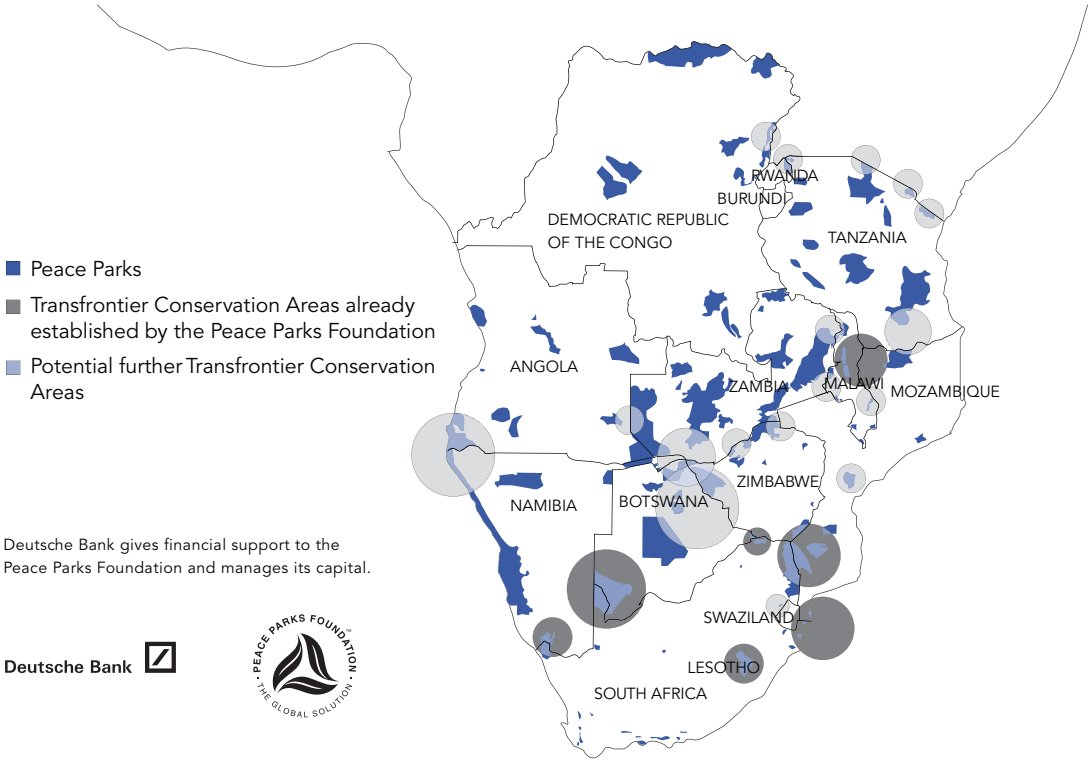
Institutions for promoting water cooperation

Capable institutions, which can balance conflicting interests and regulate water scarcity, are key to achieving lasting cooperative management of transboundary water resources. Several requirements have been formulated for such institutions, which offer some indications of the institutional conditions conducive to promoting cooperation on a broader level (Wolf et al., 2005):

- Cooperative institutions require backing by treaties detailing rights and obligations of riparian countries, other informal agreements, or cooperative arrangements;
- The institutions must possess sufficient human, technical, and financial resources to develop comprehensive water use plans and enforce their implementation;
- The institutions must integrate subsectors of water management (agriculture, fisheries, water supply, regional development, tourism, transport, and environmental protection); and
- The activities of newly created institutions should not conflict with traditional water use practices.

Cooperative water management can anticipate conflicts and resolve simmering disputes, if all interest groups are involved in the decision-making process and receive enough resources (information, trained staff, and financial support) to enable them to participate as equal

Transfrontier Conservation Areas in Southern Africa



Source: Southern African College of Tourism (2002), courtesy Adelphi/Weltformat.

partners. Cooperative water management can reduce the potential for conflict by:

- Providing a forum for joint negotiations and ensuring that existing—and potentially conflicting—interests are taken into account during the decision-making process;
- Accommodating different perspectives and interests, thereby widening the base of available options and facilitating win-win solutions;
- Building mutual trust through cooperation and joint fact-finding, and de-escalating user conflicts by sharing knowledge about the resource; and
- Reaching decisions that have a high probability of being accepted by all interest groups, even when no consensus is achieved.

At the local level, traditional community-based mechanisms for water and/or conflict management can prove very useful, as they are rooted in local conditions and are already accepted by their communities. Examples include the *chaffa* committee, a traditional water management institution of the Boran people in the Horn of Africa, or the Arvari Parliament in the Indian state of Rajasthan, an informal decision-making and dispute resolution body based on traditional practices in the Arvari watershed.

At the international level, river basin commissions that include representatives from all the riparian countries can cooperate successfully to manage their shared water resources (Kramer, 2004). The climate for negotiation within the Permanent Okavango River Basin Water Commission (OKACOM), founded in 1994 by Angola, Namibia, and Botswana, is perceived to be constructive by the countries involved (Pinherio, Gabaake, & Heyns, 2003). The country commissioners have shown they believe that active cooperation offers greater advantages than confrontation or merely sharing the water (Wolf et al., 1999). Yet problems

remain: OKACOM has had trouble generating adequate financial resources and developing a political agenda. Due to these difficulties, OKACOM recently encouraged NGOs and civil society to assume a more active role, acknowledging that the national governments are not able to implement effective management strategies for the river basin on their own (Conca, Carius, & Dabelko, 2005).

Forms of participation

Broad-based stakeholder participation is an important prerequisite for transferring the positive impacts of water cooperation to wider society. One of the keys to the Trifinio Plan's success was the platform it provided for high-level political dialogue *and* for cooperation at the local level. It also facilitated the participation of local stakeholder groups (López, 2004). Getting all interest groups to cooperate, however, is not possible in all river basins; in some cases, it is not even advisable. When a conflict is advanced and the interests are very disparate, the conflicting parties may be unable to reach a consensus or may not be interested in cooperating with each other. In such cases, joint education and training projects or a joint study of the issues can help build consensus and trust as first steps towards cooperative decision-making.

Some highly controversial cases, such as the Nile basin, have achieved success by departing from the broad-based participation rule in favor of an "elite" model. In this model, high-ranking representatives of the negotiating parties build consensus before a broader group tackles the problem. However, successfully implementing decisions made during these high-level negotiations requires effectively broadening participation in the implementation process (Kramer, 2004).

In the Nile basin, the Nile Basin Civil Society Stakeholder Initiative and the Nile Basin Discourse were established by civil society groups as fora for dialogue among stakeholders in the 10 member countries of the high-level Nile Basin Initiative.[4] These fora allow stakeholders—beyond traditional networks of state representatives—to provide input into development projects along the river basin (Kameri-Mbote, 2007). Lessons learned from the German Technical Cooperation Agency's (GTZ) project promoting stakeholder participation in the Limpopo River basin may also help us understand how best to promote the participatory approach in the Nile basin (Mushauri & Plumm, 2005).

Lastly, using a neutral third party, such as in mediation or arbitration, to manage conflict has proved an effective strategy; for example, the World Bank successfully mediated the distribution of the Indus waters between Pakistan and India. Groups made up of village elders, women, or water experts have successfully initiated cooperation in instances where the conflicting parties could not find any common ground. For example, the Wajir Peace Group, a women's group in Kenya, has helped reduce the number of violent clashes between shepherds fighting over access to water (Kramer, 2004).

Measuring Impacts of Environmental Peacebuilding

There are six reasons why our knowledge about the role and impacts of environmental cooperation as a mechanism for conflict transformation and peacebuilding is so scant:

1. The complex nature of cooperative transboundary environmental projects necessitates persuading conflicting parties to negotiate without explicitly articulating—and thereby politicizing—the peacebuilding dimension. This characteristic also leads such projects to set "soft" or very general objectives, at best. Both of these aspects complicate any evaluation of their potential peacebuilding impacts.

2. Weak governance and the lack of administrative capacity often lead non-governmental stakeholders to take an active role in natural resource management in regions in conflict or crisis. This role further complicates evaluation, which is usually based on specific criteria for state action.

3. Successful transboundary environmental projects presuppose that parties will come to an agreement on relatively complex interests. Thus, the hypothetical and oft-postulated "win-win" situations frequently either do not exist at all or are very difficult to achieve. They are, moreover, subject to conflicting national and sector interests, as well as sovereignty claims. Benefit-sharing agreements often fail in practice because the economic benefits for individual countries are not apparent or otherwise difficult to market politically.

4. The initiatives often do not include evaluation of peacebuilding impacts in their plans. The lack or deliberate avoidance of such evaluations is usually politically motivated. Neither the implementing organizations, nor the supporting governments, nor the conflicting parties themselves are interested in highlighting the relevance of such projects in peace processes. In addition, these groups often do not have a mandate for conflict management or a formal role in developing such processes.

5. Resource degradation and user conflicts are not the sole or primary causes of violent conflicts, making it difficult to analyze the extent to which environmental components contribute to the genesis of a conflict. Similarly, a comprehensive analysis of a conflict would require complex methods of impact assessment, which are either not available or have not yet been tested.

6. Cooperative environmental projects tend to be initiated when conflicts are not intense. Consequently, the impact of individual projects on preventing violent conflicts is difficult to assess, a problem common to all preventive actions. The genocides in Sudan and Rwanda have clearly demonstrated that the international community intervenes at best belatedly in violent conflicts.

The international donor community has adopted two new approaches to highlight these constraints: conducting peace and conflict impact assessments (PCIA) of projects and programs in the fields of sustainable development and environmental conservation; and mainstreaming conflict-sensitive criteria in the planning of development projects and programs.

Experiences with PCIAs in the environment sector so far have been inadequate, not transparent enough, and not subjected to systematic analysis. PCIAs also vary greatly according to what is being assessed; they are either geared toward conflict regions and countries, or toward completed projects. The Swiss Agency for Development and Cooperation (SDC) commissioned some PCIA studies in conflict regions that also examined sustainable development and resource conservation as sources of conflict. However, these unpublished studies have not been systematically analyzed, nor do they provide any significant insights into resource conservation and environmental degradation as sources of conflict.

USAID, GTZ, the Swedish International Development Cooperation Agency, and the Food and Agriculture Organization have made similar attempts to assess impacts and mainstream conflict-sensitive criteria, including toolkits, awareness programs, and training. Also, although OECD/DAC and ENVSEC have drawn attention to environmentally relevant violent conflicts, no projects explicitly integrate impact assessment methodologies in their conflict analyses.

In the "Cross-Sectoral Strategy for Crisis Prevention, Conflict Transformation, and Peacebuilding in German Development Cooperation," the German Ministry for Economic Cooperation and Development (BMZ; 2005) established binding guidelines and recommendations for planning, implementing, and steering Germany's official development assistance. This cross-sectoral strategy will be mainstreamed into the planning and conceptualization of individual programs and measures. To operationalize the concept, bilateral cooperation projects will be classified according to whether they are in conflict-affected, post-conflict, or conflict-prone countries, to ensure that future projects are designed in a

conflict-sensitive manner to avoid unintended negative impacts. However, this innovative mechanism has yet to be tested in practice.

It is doubtful that the available methods of impact assessment are suitable for assessing impacts on the peace process in a situation or region in crisis, for these reasons:

- The direct impacts of peace-promoting activities and conflict management are difficult to measure;
- The relevant impacts tend to occur after a time lag;
- Peacebuilding processes do not proceed linearly; short-term successes are followed by frequent setbacks. However, measures that are not successful at managing conflict and building peace may play a valuable long-term and indirect role in a peace process;
- The interests of participating stakeholder and target groups tend to shift during the course of individual development projects; and
- Available evaluation methods focus largely on assessing compliance with project objectives (i.e., the short-term, direct impacts of projects), not more broad-based impacts within the societal, regional, or supra-regional context (Fischer, 2006).

Conclusions and Recommendations

This article outlines the scope and constraints of the premise that environmental cooperation contributes to conflict prevention and peacebuilding. I find limited scope to draw general conclusions with high levels of confidence. While a project's potential for peacebuilding may lend it legitimacy, on its own, it is not a sufficient justification for transboundary environmental projects. Analyses of cooperative water management initiatives far outnumber those of nature conservation projects. Different models for specific types of cooperation have been developed and applied in different conflict situations.

Conflict prevention and peacebuilding impacts cannot be directly inferred from the projects and programs discussed in this article. Southern Africa's experience with transboundary cooperation in nature conservation shows that the institutionalization of norms and rules through bilateral and multilateral arrangements is a key prerequisite if such projects are to overcome the problems inherent in such ventures. Political integration and peace processes can subsequently be set in motion with backing at a higher political level. The examples of transboundary water cooperation in southern Africa (SADC) and in Central America (Trifinio Plan) highlight the importance of an enabling political framework and stable multilateral institutions. Water cooperation evolves into broader forms of political cooperation if it is integrated into an economic and political institutional context.

Methods for assessing the impacts of transboundary environmental projects on conflict transformation and peacebuilding have not been sufficiently tested. Given their methodological limitations, it is unlikely that assessments will provide any significant insights. However, this does not mean that environmental cooperation in water and nature conservation does not justify the effort and expense involved, or has no impact on conflict prevention and peace processes. To move forward, we need systematic assessments and a constructive dialogue with policymakers to make environmental peacemaking projects more effective.

The first step should be conducting a systematic analysis of previous case studies and actual cooperation projects in water and nature conservation. The absence of a comparative research project analogous to existing studies on environmental conflict is a major limitation. We must fill this obvious gap and make the findings available to policymakers.

To do this, we must overcome the compartmentalization of policymaking and academia into divisions and disciplines (e.g., environmental policy, foreign policy, development policy, trade policy, etc.). Currently, there are no interdisciplinary studies in this area (Carius & Dabelko, 2004). Environmental peacebuilding cannot be meaningfully tackled by environmentalists or peace and conflict scholars in iso-

lation. Similarly, political decision-makers must overcome a department-centric focus and move toward integration.

Martina Fischer (2006) has proposed an ongoing evaluation centered on process-orientation, participation, and participant learning, which takes into account the overall societal context of peacebuilding. This form of participatory and action-oriented research results not only in an objective acquisition of knowledge about social contexts, but at the same time helps improve social conditions by linking project implementation with parallel research.

The conflict classification mechanism, which was introduced in BMZ's cross-sectoral strategy, is an important tool. Experts and research institutes should participate in operationalizing and testing the still-to-be-defined criteria for project and program evaluation. Experts could potentially participate in fact-finding missions, program planning, progress monitoring and reviews, and initial evaluations. These practices would help integrate environmental and resource aspects in conflict analysis and bridge the gap between practitioners and researchers in this area.

Development agencies possess wide and varied experiences in environmental protection and natural resource conservation projects. Indeed, forms of conflict management and mediation play roles in sectoral projects for rural development and sustainable natural resource management. However, even within the implementing organizations, this knowledge is often not transparent and accessible, and holds untapped potential for conflict prevention and peacebuilding. Initiatives that could recognize this potential include holding joint seminars for senior management; including peace and conflict experts in the development of country and regional strategies for conflict regions; and involving environmental experts in formulating sectoral strategies in conflict prevention and peacebuilding programs. To test the thesis of environmental peacemaking, prominent examples such as FoEME's Good Water Neighbors project would need substantial political and financial backing, as well as thorough research, to identify lessons learned and to feed into policy planning and implementation.

Notes

1. This article is adapted from a longer report prepared for the German Ministry for Economic Cooperation and Development (BMZ), available online at http://www.ecc-platform.org/images/adelphi_report_environmental_peacemaking.pdf

2. For more information on FoEME's "Good Water Neighbors" project, see http://www.foeme.org/projects.php?ind=32

3. Ai-Ais/Richtersveld Transfrontier Park (Namibia/South Africa), Kgalagadi Transfrontier Park (Botswana/South Africa), Great Limpopo Transfrontier Park (Mozambique/South Africa/Zimbabwe), Limpopo-Shashe TFCA (Botswana/South Africa/Zimbabwe), Lubombo Transfrontier Conservation and Resource Area (Mozambique/South Africa/Swaziland), Maloti-Drakensberg Transfrontier Conservation and Development Area (Lesotho/South Africa), Iona-Skeleton Coast TFCA (Angola/Namibia), Kavango-Zambezi TFCA (Angola/Botswana/Namibia/Zambia/Zimbabwe), Malawi-Zambia TFCA (Malawi/Zambia), Chimanimani TFCA (Mozambique/Zimbabwe).

4. See www.nilebasindiscourse.org for more information.

References

Adler, Emanuel. (1997, June). "Imagined (security) communities: Cognitive regions in international relations." *Millennium: Journal of International Studies*, 249–77.

Adler, Emanuel, & Michael Barnett (Eds.). (1998). *Security communities.* Cambridge, UK: Cambridge University Press.

BMU (Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety). (2004). *Internationale Partnerschaft für nachhaltige Entwicklung n Bergregionen. Bergpartnerschaften der Alpenkonvention (Umwelt Nr. 3/2004).* [International partnerships for sustainable development in mountain regions: Mountain partnerships under the Alpine Convention (No. 3/2004)]. Berlin: BMU.

BMZ (German Federal Ministry for Economic Cooperation and Development). (2005). *Übersektorales Konzept zur Krisenprävention, Konfliktbearbeitung und Friedensförderung in der deutschen Entwicklungszusammenarbeit. Eine Strategie zur Friedensentwicklung.* [Cross-sectoral

strategy for crisis prevention, conflict transformation and peacebuilding in German development cooperation. Strategy for Peacebuilding]. Bonn, Germany: BMZ.

Carius, Alexander. (2003). "Naturschutz als Beitrag zur Friedensentwicklung [Nature conservation and peacebuilding]." In Elke Steinmetz (Ed.), *Naturschutz - (Aus-)Löser von Konflikten?* [Nature conservation: Causing or solving conflicts?] (pp. 23-32). Bonn, Germany: German Federal Agency for Nature Conservation.

Carius, Alexander, & Geoffrey D. Dabelko. (2004). "Institutionalizing responses to environment, conflict, and cooperation." In *Understanding environment, conflict, and cooperation* (pages 21-33). Nairobi, Kenya: United Nations Environment Programme.

Carius, Alexander, Geoffrey D. Dabelko, & Aaron T. Wolf. (2004). "Water, conflict, and cooperation." *Environmental Change and Security Program Report 10,* 60-66.

Carius, Alexander, Moira Feil, & Dennis Tänzler. (2003). *Addressing environmental risks in Central Asia: Policies, institutions, capacities.* Bratislava, Slovakia: United Nations Development Programme (UNDP).

Carius, Alexander, Ingmar von Homeyer, & Stefani Bär. (2000). "The eastern enlargement of the European Union and environmental policy: Challenges, expectations, speeds and flexibility." In Katharina Holzinger & Peter Knoepfel (Eds.), *Environmental policy in a European Union of variable geometry? The challenge of the next enlargement.* Basel, Switzerland: Helbig & Lichtenhahn.

Conca, Ken, Alexander Carius, & Geoffrey D. Dabelko. (2005). "Building peace through environmental cooperation." In Worldwatch Institute (Ed.), *State of the world 2005: Redefining global security* (pp. 144-159). Washington, DC: Worldwatch Institute.

Conca, Ken, Fengshi Wu, & Joanne Neukirchen. (2003, September). *Is there a global rivers regime? The principled content of international river agreements* (Research report of the Harrison Program on the Future Global Agenda). College Park, MD: University of Maryland.

Delli Priscoli, Jerry, & Aaron T. Wolf. (2007). *Managing water conflicts: Dispute resolution, public participation, and institutional capacity-building.* Cambridge, UK: Cambridge University Press. Manuscript in preparation.

Dinar, Ariel, & Edna Tusak Loehman (Eds.). (1995). *Water quantity/quality management and conflict resolution: Institutions, processes, and economic analyses.* Westport, CT: Praeger.

Fischer, Martina. (2006). *Friedensarbeit zwischen Kurzzeit-Evaluierung, Prozessbegleitung und Aktionsforschung* [Peacebuilding efforts between short-term evaluation process and action-oriented research] (Berghof Working Papers No. 3). Berlin: Berghof Forschungszentrum für konstruktive Konfliktbearbeitung. Available online at http://www.berghof-center.org/uploads/download/wp3dt_loccum.pdf

Haidar, Suhasini. (2005, June 13). "Indian PM's bid for peace mountain." *CNN.* Available online at http://edition.cnn.com/2005/WORLD/asiapcf/06/13/siachen.india/index.html

Kameri-Mbote, Patricia. (2007, January). *Water, conflict, and cooperation: Lessons learned from the Nile River basin* (Navigating Peace Issue 4). Washington, DC: Woodrow Wilson International Center for Scholars.

Kramer, Annika. (2004). *Water and conflict: Toolkit for practitioners* (Policy briefing for USAID Office of Conflict Management and Mitigation). Unpublished manuscript.

Lafontaine, Alain. (2006). *Mid-term assessment of the partnership developed through the Environment and Security Initiative* (Final evaluation report commissioned by Canadian International Development Agency [CIDA]). Gatineau, Canada: CIDA.

López, Alexander. (2004). *Environmental conflicts and regional cooperation in the Lempa River basin: The role of Central America's Plan Trifinio* (EDSP Working Paper No. 2). Berlin, Germany: Environment, Development, and Sustainable Peace Initiative.

Mushauri, Joshua, & Hermann J. Plumm. (2005). *Assessment of stakeholder participation within the Limpopo River basin: Strengthening the legal and institutional framework for integrated river basin management of the Limpopo and Orange-Senqu watercourse systems.* Eschborn, Germany: Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ). Available online at http://www2.gtz.de/dokumente/bib/05-1052.pdf

Nagler, Michael N. (1999). "What is peace culture?" In Ho-Won Jeong (Ed.), *The new agenda for peace research.* Aldershot, UK: Ashgate.

Pinherio, Isidro, Gabaake Gabaake, & Piet Heyns. (2003). "Cooperation in the Okavango River basin: The OKACOM perspective." In Anthony Turton, Peter Ashton, & Eugene Cloete (Eds.), *Transboundary rivers, sovereignty and development: Hydropolitical drivers in the Okavango River basin* (pp. 105-118). Pretoria, South Africa: African Water Issues Research Unit & Green Cross International.

Samimi, Cyrus, & Marcus Nüsser. (2006). "Visionen der vernetzung von schutzgebieten im südlichen Afrika [Visions of protected area networks in south-

ern Africa]." *Natur und Landschaft 81*(4), 185-192.
Turton, Anthony, Marian Patrick, Jude Cobbing, & Frédéric Julien. (2006, August). *The challenges of groundwater in southern Africa* (Navigating Peace Issue 2). Washington, DC: Woodrow Wilson International Center for Scholars.
UNDP, UNEP, & Organization for Security and Cooperation in Europe (OSCE) (Eds.). (2004). *Environment and security: Transforming risks into cooperation–The case of the southern Caucasus.* UNDP, UNEP, & OSCE. Available online at http://www.envsec.org/southcauc/pub/envsec_transforming_risk_enb.pdf
UNEP Department of Early Warning and Assessment (Ed.). (2004). *Understanding environment, conflict, and cooperation.* Nairobi, Kenya: UNEP.
Wolf, Aaron T. (2001). "Water, conflict, and cooperation." In Ruth S. Meinzen-Dick & Mark W. Rosegrant (Eds.), *Overcoming water scarcity and quality constraints* (2020 Vision Focus 9). Washington, DC: International Food Policy Research Institute.
Wolf, Aaron T., Jeffrey A. Danielson, Jeffrey A. Natharius, Brian S. Ward, & Jan K. Pender (1999). "International river basins of the world." *International Journal of Water Resources Development 15*(4), 387–427.
Wolf, Aaron T., Annika Kramer, Alexander Carius, & Geoffrey D. Dabelko. (2005). "Managing water conflict and cooperation." In Worldwatch Institute (Ed.), *State of the world 2005: Redefining global security* (pp. 80-99). Washington, DC: Worldwatch Institute.
Zbicz, Dorothy. (2001). "Global list of complexes of internationally adjoining protected areas." In Trevor Sandwith, Clare Shine, Lawrence Hamilton, & David Sheppard (Eds.), *Transboundary protected areas for peace and co-operation.* Gland, Switzerland, & Cambridge, UK: IUCN.

SPECIAL REPORT

Health, Population, and Fragility: Insights From a Meeting Series

The Environmental Change and Security Program recently completed an expert meeting series on the relationship between health and population issues and the evolving U.S. Agency for International Development (USAID) strategy for fragile states—now called "Rebuilding Countries," under the new Strategic Framework for U.S. Foreign Assistance. Developed as an internal consultation with USAID's Office of Population and Reproductive Health (PRH), the series brought together practitioners interested in population, conflict, and fragile states from PRH, other USAID offices, implementing partners, and outside experts from the health-population-security field.

The series sought to broaden understanding of health and population issues as part of the problem and part of the solution to instability challenges, as well as foster debate about the correlations between fragility and population dynamics such as youth, sex ratios, differential population growth rates (within and between countries), population density, urbanization, and public health. "We are gleaning lessons from field-based service delivery in conflict and post-conflict zones—lessons for delivering the services to save and improve lives. But we are also working to understand how building health capacities in post-conflict zones might contribute to meeting broader stability and conflict prevention goals," said ECSP Director Geoff Dabelko.

Archived videos, summaries, and presentations are available online at www.wilsoncenter.org/ecsp

Note: Summaries drafted by Ken Crist and Matthew Robinson; series edited by Alison Williams and Meaghan Parker.

The Security Demographic: Assessing the Evidence

Tuesday, June 13, 2006

As a country's birth and death rates shift from high to low, it is said to be moving through the "demographic transition." Countries that have completed this transition are less vulnerable to civil conflict, argued Richard Cincotta, former senior research associate at Population Action International at the Wilson Center on June 13, 2006. Drawing on three decades of data, Cincotta and Jack Goldstone of George Mason University explored the relationship between demography and conflict, which is critical to USAID's reexamination of the Fragile/Rebuilding States strategy. Goldstone argued that due to demography's link to instability, the national security and development communities have a vested interest in helping societies move through the demographic transition to achieve the so-called "security demographic"—defined by Cincotta as "a set of stability-promoting demographic characteristics."

SPEAKERS:

Richard P. Cincotta, Senior Research Associate, Population Action International[1]

Jack A. Goldstone, Virginia E. and John T. Hazel Jr. Professor of Public Policy, George Mason University; and Member, Political Instability Task Force

Demographic Transitions and Youth Bulges

Demographic transitions have occurred naturally and frequently throughout history, noted Goldstone. For example, the United States is experiencing the effects of its own demographic transition as the baby boomers begin to reach retirement age and challenge the country's ability to care for a large elderly population. In the developing world, the impact of such transitions can exacerbate or spur other serious problems, including civil conflict. In a country with a low natural growth rate, demographic increases often have little profound impact because the economy can generally grow to absorb the additional population. "Society [can] adapt over time to expanding numbers, without a sudden increase in demand for services," Goldstone said. However, in a country with high fertility and falling mortality, a large youth cohort may reach adulthood without giving the government a chance to adapt. This "youth bulge" can contribute to a catalog of problems in developing countries, particularly if government and civil society are unable to ensure basic services such as employment, housing, and education for the members of the larger cohort.

Goldstone argued that everyone—from parents to the courts, from the health system to the education system—is put under increased strain by youth bulges. "When you have that huge surge in surviving children, well, children need supervision, they need education, they need opportunities. They also need to be socialized into respect for existing law and order. If that doesn't happen, then they want to go off and find their own way," he said.

Youth Bulge and Civil Conflict

According to Cincotta, a society's propensity toward civil conflict increases if it cannot adequately accommodate youth bulges. Age distributions in Uganda, Angola, Chad, and the Solomon Islands reveal that these countries share a predisposition toward civil conflict because of their common feature: Greater than 50 percent of the population is between ages 15 and 24. Historically, he said, countries experiencing youth bulges were more likely to experience civil conflict, which, in modern times, has far outweighed the incidence of interstate conflict.

While youth bulges are not always destructive, they can be destabilizing if they exacerbate competition for already scarce jobs and

Demographic risk factors for conflict are clearly demonstrable, but often lose ground to a country's pressing political and social concerns.

Jack A. Goldstone, Richard P. Cincotta (© David Hawxhurst, Woodrow Wilson Center)

opportunities to the point where the youth cohort begins searching for economic and social advancement through other avenues. "[M]uch of the risk that is generated by demographic factors has to do with the ease of recruitment, of recruiting mostly young males to extremist political organizations, to insurgencies, to state-supported regular and irregular security forces," Cincotta said. Increased membership in such groups—and the great competition among them—is an indicator of brewing unrest.

Other factors can exacerbate the negative impacts of youth bulge, primarily rapid urbanization associated with extreme population growth. This dynamic creates conditions that support black market trade and other illegal activities, and may compound shortages that already exist. The black market, Cincotta said, has been linked to the rise of gangs and paramilitary movements, adding that parents and society often have great trouble mitigating the impact of "street culture" on young adults, which only exacerbates the problem.

The Role of Development Agencies

In Cincotta's experience, research on the connections between demographic changes and conflict has traditionally been presented to the national security community, not the development community. As a result, his work "purposely avoids what is called the human security rationale, but that doesn't mean that those rationales are illegitimate"; instead, state security and state-building "are increasingly framing foreign policy funding and programming." Since the current political climate puts a premium on security, tying development to security is crucial. Demographic risk factors for conflict are clearly demonstrable, but often lose ground to a country's pressing political and social concerns: "The security community…is just preoccupied with short-term solutions," he said. Prioritizing health care and demographic development independently of a national security tie is further complicated by the fact that it is often difficult—if not impossible—to separate the economic causes of conflict from the demographic ones.

Development can mitigate and even eliminate the instability that normally accompanies demographic transition, according to Goldstone: "A rich society does have more scope. If you have a society like China where the economy is growing at 6 or 7 percent, they probably didn't need the one-child policy, although some of that rapid growth was precisely because their dependency ratio means that most of the population is adult and productive." He urged Western development professionals to help countries achieve their security demographic: "You can think of society as a very large multicellular organism, where the individuals are like the cells. A healthy organism grows at a normal rate and within proportion. The different parts of the body grow in proportion and it all functions well." If development agencies can promote that normal growth—and in the right proportion—civil conflict will be less likely, he concluded.

Note

1. In late 2006, Richard Cincotta moved to the National Intelligence Council. See also Cincotta's article on "Population Age Structure and Its Relation to Civil Conflict: A Graphic Metric" on page 57 of this *Report.*

Securing Health: Lessons From Nation-Building Missions

July 26, 2006

Health services may provide the foundation for democracy in some post-conflict countries, argued Ross Anthony of the RAND Corporation on July 26, 2006. Anthony and his colleague Seth Jones discussed their new edited volume, *Securing Health: Lessons From Nation-Building Missions*, which reviews past efforts to establish health services in countries recovering from conflict.[1] The book's contributors examine how post-conflict instability affects health programming, and how such programming forms an essential component of nation-building.

Health as an Outreach Effort

According to Anthony, the world has become increasingly alienated from, and hostile to, the United States. Furthermore, even traditionally staunch allies have been reevaluating their relationships with the United States. Health programming can, he argued, provide a reasonable and effective means to counter such negative images. Providing humanitarian health assistance to less fortunate countries is a good way to build goodwill and cooperation, which can then be parlayed into more significant ties. Health programming can also be an effective international relations tool, because it can change not only how people think about the United States but also how they think about themselves and their place in the world. Additionally, offering marginalized people some of the concrete benefits of globalization could help them integrate into the new economic world.

The Theoretical Framework of Post-Conflict Health

"We wanted to look at…seven distinct efforts after U.S. nation-building operations, and look specifically at the health care system…the effects of the nation-building, and health effects on that process," said Anthony. The authors studied nation-building in Germany, Japan, Iraq, Afghanistan, Haiti, Kosovo, and Somalia. Determining the extent of improvements in post-conflict countries can be extremely difficult. Commonly used indicators (e.g., life expectancy, infant mortality, birth/death rates) provide the best means of measuring overall levels of health and health care, according to the authors, but in many cases data are either nonexistent or of questionable reliability. However, some members of the audience questioned whether these problems were as widespread as claimed.

Gathering new survey data in post-conflict countries can also be problematic due to low levels of security. Using as much data as they could gather, the authors charted trends (pre-conflict and post-conflict) and compared them with security indicators—such as the number of violent attacks, amount of civil unrest, and civilian casualties—in an attempt to establish links between security and health.

The Case for Correlation Between Health and Security: The Country Studies

Drawing on some examples of health program reconstruction in post-conflict countries, Seth Jones argued that nation-building cannot succeed without at least partial success in building public health. Broadly speaking, the countries they studied fell into one of three categories: very successful (Japan and Germany), mixed success (Iraq and Kosovo), and failures (Somalia, Afghanistan, and Haiti).[2] Both Japan and Germany experienced a relatively rapid expansion in the provision of both public health services and commodities, leading to commensurate increases in all of the health indicators. Both countries' post-conflict security levels were very high and extremely stable; for

SPEAKERS:

Ross Anthony, Co-Director of the Center for Domestic and International Health Security, Director of Global Health, RAND Corporation

Seth Jones, Political Scientist, RAND Corporation Adjunct Professor, Edmund A. Walsh School of Foreign Service, Georgetown University

Ross Anthony
(© David Hawxhurst, Woodrow Wilson Center)

example, not a single American soldier died due to enemy action during the post-World War II occupation of Japan. Both countries were devastated by the war, yet health indicators reached higher levels than before the war relatively quickly. A large part of this recovery must be attributed to the high levels of pre-war health care and organization, they argued, leading the population to expect the state to provide certain levels of care.

In contrast, the mixed cases (Kosovo and Iraq) may have recovering health indicators, but they have not recovered to pre-war levels or been obtained through sustainable local means or management. In Iraq, the current war has caused a precipitous decline in the levels of health indicators across the board, and the situation has not improved much since the end of major hostilities. While the causes for this situation are myriad and complex, the general conclusion is clear: The lack of security has drastically affected the ability of health programmers to conduct interventions on the large scale necessary to effect real change, and the lack of basic health services has decreased the coalition's ability to build the trust and confidence necessary to improve security. Also, clinics and health service providers, along with health system infrastructure and the supply chain, have been the victims of violent attacks. Some audience members pointed out that the situation in Iraq, like Afghanistan, is still developing, and suggested that it was too soon to assign a definitive category to such countries. In Kosovo, while there has been a marked improvement in many health indicators since the war, the improvements have not been achieved in conjunction with local leadership, and are therefore not sustainable.

The failures—including Afghanistan, Haiti, and Somalia—share common characteristics. First, the countries' infrastructures were devastated, leaving extremely little basis for rebuilding. Second, the countries lack human capital (e.g., skilled practitioners), and the population does not hold high expectations for service delivery. Finally, and most significantly, NGOs and governmental actors do not coordinate, which leads to duplicate or counterproductive efforts. All of these problems are exacerbated by security issues: It can be difficult to coordinate if convoys cannot get through to service sites, just as it is difficult to maintain human capital when violence is high, as people with marketable skills tend to leave the country.

Lessons Learned

Anthony pointed out that security does not impact the development of health services in only one aspect, but in every single one. As such, health programmers must take the security situation into account when planning, executing, and developing expectations for new programs. Overcoming the challenges of rebuilding health in devastated nations requires planning and coordination, infrastructure and resources (including human resources), and strong leadership. In low-security countries, these requirements are much more difficult to meet; it may make more sense to operate on a small scale while preparing for a larger intervention when conditions improve.

Health aid can clearly provide an independent benefit not only by improving relations between countries, but also by decreasing the economic drain of poor health and lost productivity. Officials focused on ensuring stability and fostering democracy must view rebuilding the health sector in post-conflict countries as a critical ingredient for success, instead of a low-priority luxury item. Jones concluded, "Health in most of these cases can have an important independent effect; in some cases it can have a negative impact on hearts and minds (as in Iraq), in some cases a positive one as we found with Japan. It can also provide the groundwork for democracy in some cases." Health programming, then, must be viewed not only as a means to the end of security or economic reconstruction, but as a fully fledged facet of post-conflict nation-building.

Nation-building cannot succeed without at least partial success in building public health.

Notes

1. Available online at http://www.rand.org/pubs/monographs/2006/RAND_MG321.pdf

2. Some audience members questioned these groupings, due to the differences in time between conflict cessation and evaluation of success in some of the cases; for example, hostilities in the "very successful" cases—Japan and Germany—ended more than 50 years ago.

Health Provision in Fragile Settings: A Stabilizing Force?

September 12, 2006

Strengthening public health systems can help foster good governance, encourage reform, and improve stability in fragile settings, said Emmanuel d'Harcourt of the International Rescue Committee (IRC) on September 12, 2006. D'Harcourt was joined by fellow IRC colleague Lizanne McBride and Columbia University Professor Ronald Waldman to discuss best practices for conducting health work in fragile or post-conflict countries, as well as the potential impact of health systems on stability and security in rebuilding states.

SPEAKERS:

Ronald J. Waldman, Professor of Clinical Population and Family Health and of Clinical Epidemiology, Mailman School of Public Health, Columbia University

Lizanne McBride, Director, Post-Conflict Development Initiative, International Rescue Committee

Emmanuel d'Harcourt, Senior Technical Advisor for Child Survival, International Rescue Committee

The Value of Health Systems

Fragile governments often suffer from common problems—weak human resources, low absorptive capacity, and a lack of information on which to base effective policies, for example—that impede their ability to implement critical public services like health care. Additionally, new governments often struggle to meet the demands of citizens who expect public services to resume after conflict ends. Failure to meet these expectations could allow conflict to re-emerge, Waldman said: "There is a relatively limited window of opportunity available to convince people that they should make an emotional, a political, and a real investment in those fragile governments that take form following a tenuous peace accord, as is the case in the Democratic Republic of the Congo [DRC], south Sudan, and Afghanistan."

Investing in health systems, Waldman said, presents a promising entry point to address these problems and strengthen the relationship between government and citizens. In the DRC, for example, health systems are the strongest "relic" and one of the only sectors that continues to function well. Health systems are thus one of the avenues through which the public can demand—and receive—services from the transitional government. This process not only encourages citizens to invest in the new government, but can also lay the foundation of democracy and good governance. "We ought to recognize that it's an obligation of the health system not only to improve the health status of the population, but to work in such a way that it fosters better comprehensive governance," he said.

From Service Delivery to Building Systems

In the past, donors have focused on the delivery of essential health services, principally due to the "unspoken argument" that larger health systems could not be implemented successfully in fragile settings, noted d'Harcourt. However, recent studies conducted by the IRC in Rwanda and southern Sudan challenged this assertion, concluding that fragile governments can administer effective health programs. In Rwanda, for example, government-supported health programs helped reduce the child mortality rate by 25 percent between 2000 and 2005. According to d'Harcourt, this reduction is evidence that it is possible to build health systems in fragile environments: "You can put in systems. Why not do it in health? It is concrete,

the population definitely supports it, and it's not that expensive."

But keep expectations realistic, Waldman warned: If governments had difficulty delivering health services prior to a conflict, there is no reason to believe a new government will have any more success in this area. "Some things don't change," he said, and also stressed that investing in health systems will not be a stabilizing force unless governments have enough funding to implement programs on a national scale. Several international studies pointed out that donor investment in the health sector remains inadequate, prompting him to conclude that unless funding levels are increased, health systems will not help stabilize fragile environments.

The IRC's new Institutional Program Framework aims to incorporate capacity-building as a principal component of the organization's operations. Recognizing the need to build systems is a major shift in thinking, noted McBride, who stressed that stabilization in fragile settings requires strengthening governance at all levels, particularly at the community level. "It's insufficient to just meet basic needs and build institutions. If we don't do it in such a way that brings communities back together with their institutions, which is what conflict has destroyed…we won't be successful," she said. One significant challenge facing IRC is developing ways to measure progress on building institutions and social cohesion. While these indicators tend to be the hardest to define in a fragile or conflict setting, she nevertheless maintained that they can be developed by drawing on the vast amounts of information collected by the development sector on institution-building.

Options for USAID

Missions have a better chance of succeeding if all actors involved contribute and coordinate on national-scale system-building projects, said d'Harcourt. USAID is in a unique position to facilitate cooperation among local and international NGOs, host country officials, and beneficiaries operating in fragile settings. He argued that if USAID accepts the role of central coordinator, rather than operating alone in the field or implementing a single program, the organization will "function better" in post-conflict and fragile settings. D'Harcourt also urged the Office of U.S. Foreign Disaster Assistance (OFDA) to only issue long-term funding grants, arguing that short-term grants force programs to alter their strategic frameworks too frequently. In addition, he called for increased monitoring of costs and results of OFDA grants.

Lizanne McBride (© David Hawxhurst, Woodrow Wilson Center)

Field donors often fail to understand the value of these methods and instead prioritize "peace dividends," McBride noted. She said USAID needs to support the development of sophisticated evaluation and data collection methods in the service delivery sector and called on them to require that NGOs, including the IRC, base reports and proposals on more comprehensive data when operating in fragile environments. She emphasized that the IRC's efforts to collect data in fragile settings would be greatly assisted through close collaboration with USAID: "We have to work as partners."

Mechanisms for Health Systems Management: Reflections on the World Bank and USAID Experiences

October 24, 2006

SPEAKERS:

Sallie Craig Huber, Deputy Director for Performance Management, Center for Country Programs, Management Sciences for Health

Dr. Benjamin Loevinsohn, Public Health Specialist, World Bank

The international strategic plan to implement health systems in Afghanistan has been successful and can serve as a model in other fragile states, argued Dr. Benjamin Loevinsohn of the World Bank on October 24, 2006. Sallie Craig Huber of Management Sciences for Health (MSH) joined Loevinsohn to examine critical relationships between NGOs and governments in health care delivery, and also discuss the most efficient ways to accomplish health and stability goals in fragile settings.

Historically poor and devastated by decades of conflict, Afghanistan has some of the worst health statistics in the world. The country suffers from high child and maternal mortality rates, particularly in rural and remote areas. According to Loevinsohn, international assessments conducted after the fall of the Taliban in 2002 concluded that Afghanistan did not possess a functional health system. The findings revealed the country's dire need to train female health workers, increase the number of health care professionals with knowledge of primary health care, and bolster the number of health care professionals in rural areas. Despite the presence of 65 health sector NGOs operating in Afghanistan at the time of the assessments, the country's health infrastructure lacked coordination, resulting in the duplication of services in some areas and the absence of clinics in underserved remote areas.

Building Something From Nothing

In close collaboration with the World Bank, which provided financial support, the Afghan Ministry of Public Health (MOPH) developed a comprehensive strategy to construct a functioning health system in eight provinces. Recognizing its limited resources, MOPH was eager to partner with NGOs, but was cognizant of the need to coordinate their efforts to avoid the gaps in coverage that plagued the country in the past. To this end, MOPH awarded performance-based partnership agreements (PPAs), as well as bonuses worth up to 10 percent of the contract, to NGOs that covered the selected eight provinces and provided clear objectives and performance indicators. NGOs were competitively selected over a seven-month period and were independently evaluated by the Johns Hopkins University.

In contrast, USAID chose to issue grants directly to NGOs rather than channeling money through MOPH. One of its largest contracts was awarded to MSH, which has more than three decades of experience in Afghanistan. Through the Rural Expansion of Afghan Community-Based Health Care (REACH) project, MSH aimed to provide basic health services, specifically maternal and child health care, to millions of Afghanis in 13 provinces. Reflecting on the challenges of implementing the project's primary goal, Huber said, "When you go into a post-conflict fragile state, there is a lot of pressure to…bridge the gap in the health care system all at once." REACH encountered significant obstacles, including inadequate or damaged infrastructure, inexperienced leaders, and a lack of reliable population data. The strategy employed to overcome these challenges centered on train-

ing community health workers and midwives; offering continuous support to build management and leadership skills at MOPH; and providing support for MOPH to construct a national health management information system.

Indicators of Success

REACH's strategy has successfully improved access to health care in Afghanistan, according to Huber, increasing contraceptive prevalence, births attended by skilled attendants, and rates of immunization for rural children. Additionally, the training and deployment of more than 6,000 new community health workers has made a "major contribution" to REACH's success, she said. While conceding that the program's results are only small advances in the larger scheme, she said that progress made in the health sector will help foster stability and strengthen the relationship between Afghanis and their government: "They'll feel that the government is working for them and that they have hope for their future and their children's future."

Loevinsohn also touted Afghanistan's recent strides in the health sector. Recent studies indicate that areas with PPAs experienced the greatest percentage increases in antenatal care and the number of newly established health centers, and had the highest number of facilities with trained female workers. In addition, PPAs—at a cost of approximately US$4 per capita annually—represent the most cost-effective contract scheme used in Afghanistan, he said. The success of PPAs in Afghanistan led him to conclude that having a clear package of services and indicators, as well as established geographical assignments and evaluation methods, will lead to success: "[This strategy] will get you where you want to go."

Lessons Learned

Loevinsohn maintained that the positive results obtained in Afghanistan using PPAs show that the scheme can be replicated in other fragile environments. He recommended that donors contract more systematically with NGOs, eliminate the use of short-term contracts, and issue performance bonuses to ensure that NGOs work toward the agreed indicators of success. In addition, he encouraged donors to channel money through the host country's government. Following these measures "leads to large and rapid improvements in health services," he said.

Progress made in the health sector will help foster stability and strengthen the relationship between Afghanis and their government. They'll feel that the government is working for them and that they have hope for their future and their children's future.

Despite Loevinsohn's recommendations, some attendees voiced skepticism over the prospects of replicating Afghanistan's results in other settings. One attendee argued that governments in stable countries have not been willing to hand over lucrative donor contracts to the NGO community. Loevinsohn agreed that stable governments often have a vested interest in "keeping things the way they are" and are often hesitant to forsake the power and prestige of international contracts. But he pointed to Bangladesh and India as two successful examples of stable countries that have agreed to contract with health sector NGOs. Serious progress can be achieved through partnerships in other settings, he said, but warned that the process of replicating Afghanistan's success will be challenging and ongoing: "This is an evolving story."

Measuring the Human Cost of War: Dilemmas and Controversies

January 10, 2007

SPEAKER:
Dr. Frederick Burkle, Schools of Medicine and Public Health, The Johns Hopkins University and Harvard Humanitarian Initiative, Harvard School of Public Health

In areas of conflict and war, epidemiologic studies must incorporate indicators that measure indirect deaths, rather than looking solely at deaths from combat, argued Dr. Frederick Burkle, a senior lecturer at the Harvard Humanitarian Initiative and senior scholar at the Johns Hopkins University. Drawing on his medical experience in combat zones in Africa, Eastern Europe, Asia, and the Middle East—particularly Vietnam and Iraq—Burkle discussed the ways in which the health community can better work with political and military actors to implement effective health programs and accurate monitoring mechanisms in fragile environments.

Traditionally, international interventions in complex emergencies—politically motivated disasters with high levels of violence and civilian deaths—have focused on limiting the number of military and civilian lives claimed on the battlefield. The human toll, then, is calculated based on lives lost in direct conflict, and does not include deaths due to loss of services and infrastructure. As intrastate conflict has increased, argued Burkle, so has the need to develop a new method of calculating loss that includes indirect deaths or excess mortality—deaths that would not have occurred without the conflict or breakdown of social and health services, mass displacement of populations, and the destroyed livelihoods of those affected by violence. Burkle warned that until the international community recognizes the magnitude of indirect deaths incurred during complex emergencies, the human cost of war will remain unknown: "Except for very few countries…the humanitarian community has absolutely no idea of the worldwide impact of indirect deaths."

Linking Indirect Deaths and Health

According to Burkle, the erosion of public health infrastructure and health-service delivery are primary causes of indirect deaths during conflict. A recent assessment of the estimated 2.5 million casualties of the Democratic Republic of the Congo's civil war revealed that 90 percent of those deaths were preventable, resulting from ailments such as diarrhea, malnutrition, and malaria. Lives are often claimed during complex emergencies, he argued, because civilians are often unable to receive treatment for diseases once conflict erupts: "[A]s political violence increases…the window of opportunity to seek care narrows." Intrastate violence can also contribute to the number of deaths caused by malnutrition, particularly among the elderly; rape and war-related trauma, which can trigger or instigate mental illness; as well as the rapid spread of infectious disease. Poverty, inequality, and cultural incompatibilities are also contributing factors to indirect deaths, said Burkle, but he admitted that the precise impact of these factors is "difficult, if not impossible," to measure.

Little is known about the long-term effects of political violence on individuals and communities. But we do know that post-conflict settings are often plagued by a substantial decrease in health care, raising the risk of infectious disease. In Iraq, for example, an outbreak of cholera was reported for the first time in two decades as a result of the country's decimated public health infrastructure following the first Gulf War in 1990-91. And since the start of the recent Iraq conflict in 2003, the country's health infrastructure has been significantly impaired, creating the conditions for an outbreak of typhoid fever—6,000 cases of the dis-

Dr. Frederick Burkle (© Heidi Fancher, Woodrow Wilson Center)

Because humanitarian work has become politicized and militarized, protecting public heath must be viewed as a strategic security issue requiring close collaboration with humanitarian and military personnel.

ease were reported within the first six months of 2004 alone.

Studies conducted in Afghanistan and Croatia indicate that suicide, depression, and alcohol and drug use increase in postwar environments, particularly among demobilized soldiers and adolescent sons of dead soldiers. Finally, women and children are the most common long-term victims of civil war or conflict, a fact highlighted by increases in gender-based violence and lower school enrollment rates for girls. Burkle maintained that postwar public health effects of civil conflict must be researched in greater detail: "[We know that] increases in casualties far exceed the immediate losses from the civil war."

Lessons Learned

The number of lives claimed both during and after conflict as a result of destroyed or failing public health systems prompted Burkle to conclude that new protocols and approaches are needed to protect civilians. He stressed that because humanitarian work has become politicized and militarized, protecting public heath must be viewed as a strategic security issue requiring close collaboration with humanitarian and military personnel. In Iraq, where he served as the first director of the Ministry of Health under the Coalition Provisional Authority, the absence of a comprehensive strategy to rebuild the public health system after the war was partly to blame for an increase in Iraqi deaths from nonviolent causes between 2005 and 2006.

But any attempt to redefine public health as a security issue must be coupled with efforts to develop a more comprehensive account of the human cost of modern-day war and conflict. Burkle urged the creation of better defined and universally accepted outcome indicators that would help the humanitarian community monitor the efficiency of national health systems. Some indicators are already available: For example, rates of dengue fever—which often emerges where trash collection is inadequate—can indicate poor governance and urban decay.

Despite the pressing need to develop an approach to provide sustained public health services in conflict zones, the international community is far from realizing this goal, warned Burkle: "We really do not know how to recover or protect urban public health." Unless measures are taken to develop ways to include indirect deaths, calculating the human cost of war will remain an inexact process of estimation by political scientists and military analysts. The lives lost, he said, will "remain unseen, uncounted, and unnoticed."

NEW PUBLICATIONS

Development and Security in Southeast Asia, Volume I: The Environment

Edited by David B. Dewitt and Carolina G. Hernandez
Aldershot, United Kingdom: Ashgate, 2003. 248 pages.

Reviewed by EVELYN GOH

Evelyn Goh is a university lecturer in international relations at St. Anne's College, University of Oxford. She recently co-edited *Reassessing Security Cooperation in the Asia-Pacific,* published by MIT Press.

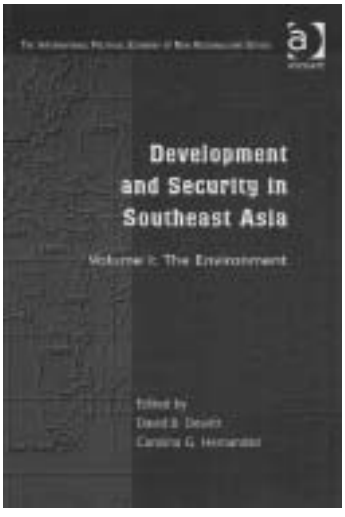
Development and Security in Southeast Asia is a three-volume series that addresses the complex and difficult—but very important—nexus between "the dynamics of development and the challenges to security" (p. 4). *Volume I: The Environment* examines the environmental dimensions of these linkages in Southeast Asia, a diverse region underrepresented within the literature on environment and development. Editors David Dewitt and Carolina Hernandez have assembled eight case studies, mainly from Indonesia and the Philippines, that together provide rich and fascinating insights into local and regional issues such as hazardous waste, deforestation, pollution, mining, food security, and climate change.

A significant contribution to the literature, the volume adds knowledge through careful on-the-ground research into the key linkages connecting environment, development, and security. It contains two particularly strong chapters: In Chapter 4, Peter Dauvergne explores the links between commercial forest management and community insecurity in the Philippines, Indonesia, and Malaysia. He reveals that the commercial importance of timber, backed by state-business alliances with strong financial interests, so dominate civil society that even in the face of local conflicts and resistance, environmental reforms are unlikely. In Chapter 7, Mary Young looks at the easily politicized issue of food production in the context of Indonesia's national development and security, teasing out the complex relationship between notions of food security (national versus local self-sufficiency; rice production versus crop diversification), sustainable agricultural methods, community social capital formation, the impacts of globalization on indigenous crop production, and national food policy.

Overall, authors in the volume use two main concepts to encapsulate the linkages among environment, development, and security:

- Human security—the notion that sources of insecurity extend beyond military conflict to include environmental degradation, economic insecurity, and political persecution, all of which threaten not only states, but also individuals and local and transnational communities; and

- Social capital—"the social glue that binds together networks of community cooperation and creates layers of social trust…crucial to enable…effective action to promote



The acceptance of the human security concept and the robustness of social capital are the key variables determining the capacity to address environmental security issues.

economic growth and protect the environment" (p. 24).

The acceptance of the human security concept and the robustness of social capital are the key variables determining the capacity to address environmental security issues. However, the volume's authors appear to assume that the human security concept enjoys widespread acceptance, when we still face the key problem of convincing major actors—such as businesses and local and national governments—that human security deserves the level of consideration and action they advocate.

Ultimately, securitization is a political activity; it can be—and is—used to achieve different ends. Dauvergne finds, for example, that Southeast Asian governments have identified local communities and their agricultural practices as threats to the environment and have used environmental security language to control dissident groups (p. 72-3).

But campaigners and scholars pushing for human security also have a revolutionary agenda. They claim that the state cannot be the only locus of security. However, in their long lists of recommendations and policy suggestions, the authors speak mainly to national governments, asking them to carry out reforms or tighten regulatory capacity. For this to happen, they must make the case more convincing to policymakers.

First, we must establish the criteria for securitization. For instance, politics and economics focus on the contest for allocation of scarce resources, so why should governments and businesses care about the well-being of people and communities? How many people must be affected, and in what ways, with what far-reaching negative consequences, before the impact of some activity on a community is considered a threat worth an exceptional response? In the majority of the case studies collected in this volume, the authors simply do not provide figures or information—on the number of people affected by pollution, for example. Decisions are made every day by governments, community leaders, and families to address the vulnerability of some and not others. Without a relative measure, securitizing every issue that negatively impacts a community's well-being is meaningless. Indeed, calling something a security threat may exacerbate conflicts over allocation, or lend ammunition to justifications for unpopular policies.

Second, we must demonstrate more systematically the links connecting environmental degradation, development, and insecurity. In some of the case studies, too much is assumed or undocumented. For instance, it is not sufficient to state that industrial waste was dumped in an area, leading to local protests; the case should be backed up with research and analysis documenting how many people fell ill with serious diseases linked to pollution in these communities in a time period that correlates to industrial dumping. We also need more detail about the tensions and conflicts that arise from or are exacerbated by environmental degradation and development, which engender significant distributional inequalities and thus friction. At which point do they become conflicts that threaten security?

Overall, this useful volume reveals the wide range of issues in Southeast Asia that pertain to the nexus of development, environmental degradation, and security. It begins to draw out some ways of understanding and coping with the attendant complex dilemmas. It also leads to more questions and provides material for further analysis in a field that is rapidly evolving and remains extremely challenging for scholars who wish to provide fresh thinking and recommendations for policymakers.

Environment and Security: Transforming Risks Into Cooperation, Ferghana/Osh/Khujand Area

By Luigi De Martino, et al.
Geneva: UNEP, UNDP, OSCE, and NATO, 2005. 53 pages.

Reviewed by KEELY LANGE

Keely Lange is a recipient of the Director of National Intelligence's Exceptional Analyst Fellowship, and is attached to the Long-Range Analysis Unit of the National Intelligence Council. She was awarded the U.S. Environmental Protection Agency's "Science to Achieve Results" Fellowship for her work on Central Asia's environmental security issues.

For quite some time specialists have been trying to "calm the Ferghana Valley" or quell the "conflict incubator" at the geographic heart of Central Asia.[1] The gerrymandered borders that separate the former Soviet states of Uzbekistan, Kyrgyzstan, and Tajikistan combine with ethnic divisions, poverty, religious fervor, corrupt or inept governance, drug and human trafficking, and proximity to Afghanistan to make this particular valley a favorite for predictions of regional conflict. To this list of conflict factors in the Ferghana Valley, the Environment and Security (ENVSEC) Initiative adds environmental issues and resource pressures.

ENVSEC coordinates the efforts of four organizations—the UN Environment Programme (UNEP), UN Development Programme (UNDP), Organisation for Security and Cooperation in Europe (OSCE), and the North Atlantic Treaty Organization (NATO)—to augment local, national, and regional capacity to address potential environmentally based instability and to strengthen environmental cooperation.[2] ENVSEC consults with host governments to identify hotspots for environmental conflict and solicits local and regional stakeholder support for cooperative projects. To date, ENVSEC has published case studies on environment and security in the southern Caucasus, southeastern Europe, and Central Asia.

In *Environment and Security: Transforming Risks Into Cooperation, Ferghana/Osh/Khujand Area,* ENVSEC sets forth a more ambitious agenda than perhaps it realized.[3] The report struggles to distinguish itself from myriad other projects on the likelihood for environmental conflict or cooperation in the Aral Sea Basin, the wider region in which the Ferghana Valley is located.[4] The report focuses on the Ferghana Valley's dire political, ecological, and economic situation and offers an exceptional collection of maps highlighting environmental hotspots. However, slick graphics belie a text that is not as consistently polished. *Environment and Security* is weak in theory and structure, but worthwhile for the breadth of information it endeavors to synthesize.

ENVSEC suggests a theoretical framework that blends "environment as a source of conflict" and "environment as a source of cooperation" by enumerating the conditions under which interstate, environmentally based conflict would erupt, or the conditions that would enable environmental cooperation. Unfortunately, the structure lacks coherence and is abandoned for most of the case study. The summary analysis table selects factors from two studies on environmentally induced violent conflict but offers no basis for its choices. The discussion of diminished livelihoods does not include data on local income or standards of living, so it is difficult to determine how the theory applies.

The report follows the school of thought that environmentally induced violent conflicts are more likely to occur within states, but the case study catalogs a host of actual or imminent interstate (transboundary) conflicts. The crux of the report's problem is its general

vagueness—a problem shared by the wider literature—on the exact nature of conflict. Is only violent conflict considered conflict? What constitutes violence? For that matter, what constitutes conflict? Can there be cooperation without first having had some form of conflict that cooperation overcomes?

While ENVSEC does not address these questions, the ENVSEC authors present interesting material that, unfortunately, is not showcased well by the report's format. Two underlying themes are subjects of theoretical debate and beg further investigation: 1) the absence of violent conflict despite persistent, overwhelming transborder environmental problems, broken treaties, and institutional failures; and 2) the role perception plays in defining or identifying security threats.

The Ferghana Valley has witnessed a variety of conflicts and cooperative efforts. Cooperation programs range from grassroots media initiatives to a flurry of regional treaties on water allocation. Conflicts extend from local feuds over land rights, to an upstream state (Kyrgyzstan) flooding its downstream neighbors in retribution for failing to uphold treaties. However, to date, there has been no interstate *violent* conflict despite these facts:

1) The situation meets many theoretical criteria for interstate violent conflict;
2) Kyrgyzstani troops deployed in 2000 and 2001 to protect water release operations;
3) Observers regularly predict violent conflict;[5] and
4) There has been plenty of interstate conflict.

To explain this discrepancy, the authors, some of whom are from the region, suggest cultural factors: strong family and clan structures, an interpretation of Islam that promotes acceptance of suffering, and a societal preference for a strong state, which legitimizes oppression but constrains violent outbreaks. The role these factors play is underdeveloped in the report and warrants further investigation.

Although strong states in the region purportedly restrain violent conflict, most of the Ferghana Valley's environmental problems are a result of poor governance and weak institutions. These states are authoritarian, but not strong. The failure of governments to enforce regional agreements intended to prevent water and energy crises led to winter flooding in 1993, 1998, 2001, and 2004, and consequent irrigation shortages in the following summers. Regional water management institutions such as the Aral Sea Basin Program and the International Fund for Saving the Aral Sea are administered at the presidential or prime ministerial level, but, as the report coyly suggests, "the real ability of ministries to fulfill the task is often overestimated" (p. 24). The much-touted Central Asian water crisis is not a function of absolute scarcity but rather of gross maldistribution and inefficient irrigation. In theory as well in practice, treaties and regional institutions may reflect cooperative intentions, but they indicate actual cooperation only if they are implemented.

The report also explores the manipulation of public perception of security threats from environmental degradation or squandered resources. Governments in the region publicize issues they believe have widespread appeal, such as the impact of pollution on public health, or that elicit public anxiety, like radiation polluting the water that irrigates the breadbasket of Uzbekistan. ENVSEC notes that "although perceptions may not reflect reality the actions taken in response to those perceptions will have real consequences" (p. 31). By calling attention to certain environmental issues for policy reasons, as opposed to the actual danger they pose, governments perform a hollow "speech act" of security; i.e., by politically labeling a problem a threat, they make it so.[6] The report does not address whether the actions taken either by the governments or the people in response to these perceptions will lead to conflict, violent or otherwise.

The dearth of credible environmental data enables the region's governments to manipulate public perception. ENVSEC supports environmental journalism, web portals to disseminate

regional environmental data, and centers for public access to environmental information. All of these will enable an improved understanding of environmental risks and may help hold local governments more accountable.

Although these local-level projects may mitigate some intrastate concerns, larger-scale projects that address significant interstate threats remain problematic. International donors walk a tightrope between limited investment undermining progress and corrupt governments undermining investment. ENVSEC and its sponsors chose to continue the trend of supporting meetings, conferences, and analytical reports and not invest in "real, physical infrastructure"—such as canals, filters, or sealing for tailing ponds—that could actually remedy some of the hotspots they identify (p. 44). Thus, this project is in danger of becoming like so many of its predecessors. As the joke says, if all the consultants and specialists assessing the Aral Sea had brought a bucket of water with them, the sea would not have dried up. Let us hope that ENVSEC's next phase will bring more to the crises it identifies in the Ferghana Valley than colorful ink.

Author's Note: All statements of fact, opinion, or analysis expressed herein are those of the author and do not reflect the official positions or views of the U.S. Government, nor should the contents be construed as asserting or implying the U.S. Government's authentication or endorsement of the author's views.

Notes

1. See Nunn, Rubin, & Lubin (1999) and ICG (2001).

2. The UN Economic Commission for Europe and the Regional Environmental Centre joined the ENVSEC Initiative in 2006.

3. Available on the ENVSEC Initiative's website at http://www.envsec.org/centasia/pub/ferghana-report-engb.pdf

4. For examples of other projects, see United Nations Special Programme for the Economies of Central Asia (2004); Daene McKinney (2004); Dukhovny & Sokolov (2003); and Erika Weinthal (2002).

5. See, e.g., Ibragim Alibekov (2003); ICG (2002); Alisher Khamidov (2001); Leila Saralaeva (2004); and Eric Sievers (2002).

6. See sections on "speech act" in Buzan, Waever, and Wilde (1998) and Lipschutz (1995).

References

Alibekov, Ibragim. (2003, May 28). "Clashing approaches becloud Central Asia's water future." *Eurasia.net.*

Buzan, Barry, Ole Wæver, & Jaap de Wilde. (1998). *Security: A new framework for analysis.* Boulder, CO: Lynne Reinner.

Dukhovny, Victor, & Vadim Sokolov. (2003). *Lessons on cooperation building to manage water conflicts in the Aral Sea basin* (PC-CP series, No. 11). Paris: UNESCO/IHP/WWAP.

International Crisis Group (ICG). (2001, June). *Incubators of conflict: Central Asia's localized poverty and social unrest* (ICG Asia Report No 16). Brussels: ICG.

ICG. (2002, May). *Central Asia: Water and conflict* (Asia Report No. 34). Brussels: ICG.

Khamidov, Alisher. (2001, October 23). "Water continues to be source of tension in Central Asia." *Eurasia.net.* Available online at http://www.eurasianet.org/departments/environment/articles/eav102301.shtml

Lipschutz, Ronnie. (Ed.). (1995). *On security.* New York: Columbia University Press.

McKinney, Daene. (2004). "Cooperative management of transboundary water resources in Central Asia." In Daniel L. Burghart & Theresa Sabonis-Helf (Eds.), *In the tracks of Tamerlane: Central Asia's path into the 21st century.* Washington, DC: National Defense University Press.

Nunn, Sam, Barnett R. Rubin, & Nancy Lubin. (1999). *Calming the Ferghana Valley: Development and dialogue in the heart of Central Asia.* Washington, DC: The Century Foundation & the Council on Foreign Relations.

Saralaeva, Leila. (2004, December 27). "Water war threatens treaty" (RCA No. 337). *Institute for War and Peace Reporting.* Available online at http://iwpr.net/?p=rca&s=f&o=162066&apc_state=henirca2c95ae326554b63cd4f0b314c6d82e28

Sievers, Eric. (2002). "Water, conflict, and regional security in Central Asia." *NYU Environmental Law Journal 10*, 356-402.

United Nations Special Programme for the Economies of Central Asia. (2004). *Strengthening cooperation for rational and efficient use of water and energy resources in Central Asia.* New York: United Nations. Available online at http://www.unece.org/

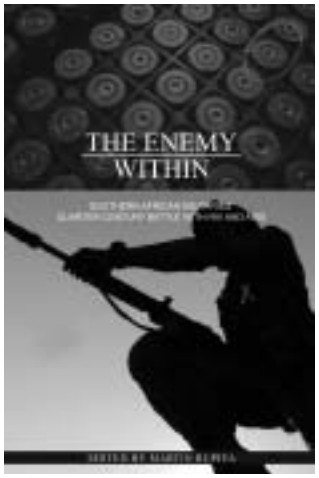
As the joke says, if all the consultants and specialists assessing the Aral Sea had brought a bucket of water with them, the sea would not have dried up.

speca/energy/effuse_en1.pdf
Weinthal, Erika. (2002). "The promises and pitfalls of environmental peacemaking in the Aral Sea Basin." In Ken Conca & Geoffrey Dabelko (Eds.), *Environmental peacemaking* (pp. 86-119). Washington, DC, & Baltimore, MD: Woodrow Wilson Center Press & The Johns Hopkins University Press.

The Enemy Within: Southern African Militaries' Quarter-Century Battle with HIV and AIDS

Edited by Martin Rupiya
Pretoria, South Africa: Institute for Security Studies, 2006. 218 pages.

Reviewed by STEFAN ELBE



Knowns and Unknowns About HIV/AIDS and Security

To paraphrase former U.S. Secretary of Defense Donald Rumsfeld, in the debate about the security implications of HIV/AIDS, there are "known knowns," "known unknowns," and "unknown unknowns."[1] We know that HIV/AIDS is a serious threat to human security, and that where it is the leading cause of death it is arguably the greatest human security threat of all. This is certainly true for the estimated 3 million people who continue to lose their lives annually to AIDS-related illnesses, and for many of the roughly 40 million people living with HIV/AIDS. Beyond the direct threat posed by the lethal virus, we also know that HIV/AIDS is a serious human security issue because in high-prevalence areas the disease continues to interact in complex ways with food security, economic security, health security, and personal security (Elbe, 2006a). Although social scientists and epidemiologists do not yet know the full extent of the challenge posed by HIV/AIDS, it is a "known known" that it is bigger than the deaths directly attributable to the illness.

When it comes to the links between HIV/AIDS and *national* security, however, we are dealing with a larger number of "known unknowns." As I showed in *Strategic Implications of HIV/AIDS* (Elbe, 2003), we know that the armed forces, like other segments of society, are affected by HIV/AIDS, but we do not know the exact magnitude of this impact, nor its wider security implications. There are two reasons: First, we lack reliable, public information on prevalence rates of HIV/AIDS in the armed forces. In the absence of this data, researchers and policymakers have often relied on intelligence estimates—the veracity of which could not be publicly verified—or speculated based on pieces of anecdotal evidence (see, e.g., Barnett & Prins, 2006; McInnes, 2006). Second, the relationship between national security and HIV/AIDS in the military is analytically much more complex than frequently assumed. Just because something affects the armed forces does not automatically make it a national security threat. There is, in other words, an important difference between arguing that HIV/AIDS is an important security

Stefan Elbe is a reader (associate professor) in the Department of International Relations at the University of Sussex. He has also held positions at the University of Essex, the University of Warwick, the International Institute for Strategic Studies, and the London School of Economics.

These country-based studies help corroborate the long-suspected risk factors that shape the armed forces' experience with the virus, such as geographic mobility and risky behavioral patterns.

issue—that it affects the armed forces—and arguing that the disease is additionally also a security *threat*—that it could catastrophically undermine a country's ability to defend itself and potentially provoke armed conflict. For these two reasons, the argument about HIV/AIDS and national security remains a "known unknown" pending further study.

The Enemy Within: Southern African Militaries' Quarter-Century Battle with HIV and AIDS marks a welcome, unprecedented, and long overdue effort to address the first of these two problems, the lack of information about the impact of HIV/AIDS on the armed forces.[2] Drawing on researchers with regional experience, and from military as well as civil society backgrounds, the report offers what has long been lacking in the debate—namely, a detailed account of armed forces' experience with HIV/AIDS in Botswana, Swaziland, and Zambia, and to some extent in Tanzania and Zimbabwe. The 13 authors of this report have progressed much closer to the heart of the issue than many who ventured the path before them. These country-based studies help corroborate the long-suspected risk factors that shape the armed forces' experience with the virus, such as geographic mobility and risky behavioral patterns. The report also provides useful information on the impact of HIV/AIDS on the armed forces' illness rates, budgets, military health care facilities, and recruitment. What is more, these authors also present—in perhaps the report's most enduring contribution—a comprehensive account of militaries' responses to the epidemic. Thus, the report helps to make it a "known known" that HIV/AIDS is indeed a security issue by virtue of its effect on the armed forces.

That said, *The Enemy Within* does not help us determine whether the magnitude of this impact is sufficiently high to merit the designation of a national security threat. Despite the repeated claims by several of its authors that HIV/AIDS constitutes a national security threat, the report contains very little new or hard data to illustrate this. There is little novel information about prevalence rates in the military; some of the figures cited by the authors are now more than a decade old. Nor do the authors address the more complicated analytical question about the relationship between HIV *prevalence* and national security. As analysts of armed conflict know, the ability of a country to defend itself depends on more than manpower, and the correlation between manpower and military might is not necessarily clear, requiring more sustained reflection. However, in many cases this data does not exist, or is not publicly available; the authors are not alone in struggling to find the hard evidence to make this link (see, e.g., Garrett, 2005).

Even after this unprecedented report, the question of whether HIV/AIDS is a national security threat because of its impact on the armed forces still remains, strictly speaking, a "known unknown" in need of further examination. This distinction is not just an academic one; if HIV/AIDS is a national security threat, then militaries are possibly emboldened in their attempts to exclude people living with HIV/AIDS from joining the ranks and to pursue preferential antiretroviral treatment for the armed forces. If it is primarily a security issue, then the armed forces would be expected to address HIV/AIDS in a wider political framework, including important human rights con-

siderations (usefully picked up on by Jonathan Lwehabura and Jeanne Karamaga Ndyetabura in their chapter on Tanzania).

What, then, of the unknown unknowns? There are at least two: First, what are the political implications of framing HIV/AIDS as a national security threat? Many of those portraying the epidemic as such believe that this frame will provide the field with more resources and leadership, while those skeptical of the link either do not find it credible or challenge the utility of extending the security agenda beyond the traditional, realist domain. Others are concerned with the effect the language of security may have on the social perception of those living with HIV/AIDS. Susan Sontag (1988) made the case for abandoning military metaphors that portray disease as an "invader" in public pronouncements about the "war on AIDS" because they stigmatize the ill. We need, therefore, to know how reframing the disease has not only influenced aggregate levels of funding, but also the relative flow of funding to civilian and military segments of the population, as well as how it has affected grass-roots efforts to respond to HIV/AIDS. I have recently begun to highlight these issues (Elbe 2006b; see also Peterson, 2002), but for the most part this area still remains an "unknown unknown."

The second such "unknown unknown" goes deeper still: We also need to ask why, well into the third decade of this epidemic, and with the availability of life-prolonging medicines, it is even necessary to frame one of the biggest diseases of our time as a threat to security in order to provoke commensurate international efforts to address it. Perhaps this "unknown unknown" about HIV/AIDS and security ought to give us pause for thought most of all.

Notes

1. "The message is that there are no 'knowns.' There are things we know that we know. There are known unknowns. That is to say there are things that we now know we don't know. But there are also unknown unknowns. There are things we don't know we don't know." Former Secretary of Defense Donald H. Rumsfeld, Press Conference at NATO Headquarters, Brussels, Belgium, June 6, 2002. Available online at http://www.defenselink.mil/transcripts/2002/t06062002_t0606sd.html

2. Available online at http://www.issafrica.org/dynamic/administration/file_manager/file_links/FULLPDFENEMYWITHIN.PDF?link_id=&slink_id=3695&link_type=&slink_type=13&tmpl_id=3

References

Barnett, Tony, & Gwyn Prins. (2006). "HIV/AIDS and security: Fact, fiction and evidence—a report to UNAIDS." *International Affairs 82*(2), 359-368.

Elbe, Stefan. (2003). *Strategic implications of HIV/AIDS* (Adelphi Paper No. 357, International Institute for Strategic Studies). Oxford, UK: Oxford University Press.

Elbe, Stefan. (2006a, Winter/Spring). "HIV/AIDS: A human security challenge for the 21st century." *The Whitehead Journal of Diplomacy and International Relations VI*(2), 101-113.

Elbe, Stefan. (2006b, March). "Should HIV/AIDS be securitized? The ethical dilemmas of linking HIV/AIDS and security." *International Studies Quarterly 50*(1), 119-144.

Garrett, Laurie. (2005, July 18). *HIV and national security: Where are the links?* New York: Council on Foreign Relations.

McInnes, Colin. (2006). "HIV/AIDS and security." *International Affairs 82*(2), 315-326.

Peterson, Susan. (2002, Winter). "Epidemic disease and national security." *Security Studies 12*(2), 43-81.

Sontag, Susan. (1988). *AIDS and its metaphors*. New York: Farrar, Straus and Giroux.

Global Demographic Change: Economic Impacts and Policy Challenges

Edited by Gordon Sellon, Jr.
Symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, August 26 - 28, 2004. 498 pages.

The New Demographic Regime: Population Challenges and Policy Responses

Edited by Miroslav Macura, Alphonse L. MacDonald, and Werner Haug
New York & Geneva: UN Economic Commission for Europe and UN Population Fund, 2005. 301 pages.

Reviewed by KYLE ASH

Kyle Ash is legislative coordinator for Physicians for Responsible Medicine. He holds degrees in international law, international affairs and political economy, and global environmental policy. He has published articles on international development, human and nonhuman rights, and international environmental law.

When the Demographic Dividend Comes A-Calling: Fertility Rates and Socio-Economic Health

Since the beginning of recorded history, birthrates have generally subsided in response to economic or geopolitical tragedy. Today, few deny the ecological impacts of the global human population, which is now about 6,000 times greater than during the first 99 percent of our species' existence (Livi-Bacci, 2001). However, the perception remains that above-replacement fertility is associated with sustained increase in quality of life. The consequent anxiety created by below-replacement fertility rates is illustrated by two recent publications: *The New Demographic Regime: Population Challenges and Policy Responses,*[1] a collection of articles prepared for the 2004 European Population Forum of the United Nations Economic Commission for Europe (UNECE); and *Global Demographic Change: Economic Impacts and Policy Challenges*,[2] a collection of papers from a 2004 Wyoming symposium sponsored by the Federal Reserve Bank of Kansas City (FRB).

Other literature has cited a "population implosion," and called countries with below-replacement fertility rates "barren," raising the ire of internationalists and feminists (Douglass, 2005). The debate in the publications reviewed here is arguably more diplomatic, but the variety of specialists participating in it remains limited. The FRB forum in Wyoming was comprised mostly of macroeconomists concerned primarily with the implications of aging populations on fiscal and monetary policies. The UNECE forum was dominated by demographers focusing on socio-economic conditions arising from, and caused by, demographic changes; it was guided by the laudable principles set forth by the 1994 International Conference on Population and Development: "Full respect for human rights, particularly the rights of women, the empowerment of women and genuine gender equity" (UNECE, p. 269). Jörg F. Maas and Christian Resch recall a 1995 European Parliament resolution that averred

Ecological economists must contribute to the discussion of global demographic change to help seek policies that allow a reasonable population decrescendo without intruding on human welfare.

"the interrelationship of population and environmental sustainability," but this interrelationship is mostly ignored in both venues (UNECE, p. 262).

Given the shift in attention in recent years from global population growth to regional declines in fertility rates, the demographic policy vernacular has gained new connotations. "Family planning" in Europe often means promoting fertility, not limiting it. It is well-documented that pro-natal incentive policies have not worked, so some scholars advocate more enthusiastic intervention. Paul Demeny, for example, even calls fertility a public good on par with national defense to ensure national existence (UNECE, p. 2-3). Wary of nationalistic exuberance, others emphasize pro-fertility policies that avoid racism, sexism, or authoritarianism.

Population in the original 15 countries of the European Union is predicted to decrease 0.2 percent per year between 2000 and 2100, a nominal decline (Lutz, O'Neill, & Scherbov, 2003). Most scholars overlook the declining "young-age dependency" in favor of more foreboding prognostics of total dependency (UNECE, p. 24). A few scholars—such as Rakesh Mohan, the deputy governor of the Federal Bank of India—distinguish between the young-age dependency, old-age dependency, and total dependency ratios, but most attention is paid to the ratio of pensioners to workers (FRB, p. 352). None of the authors in either fora notes that the total dependency ratio over time is the same for a population increasing by 1 percent as that of a population decreasing by 1 percent, given, generally, that young dependents are 0-15 years old and that the old-age ratio refers to a retirement age of 65 and longevity of 80 (both spans of 15 years). Thus, the total dependency ratio in the next century actually will be better than in the last.

If policies seek to address the economic burden of dependents on workers, the increasing costs of the elderly must be weighed against the fact that the aggregate cost of young dependents has declined. Ralph C. Bryant, senior fellow at the Brookings Institution and a former Federal Reserve economist, observes that fewer children free resources for saving and consumption (FRB, p. 94). Demographer Jerome Vignon calls for a more "prospective approach" to "acquire a better balance in population structures in the medium to long term," and the final chapter of the UNECE forum compares the average time in retirement to that of a young person in education (UNECE, pp. 45, 286). Finally, retirees are not entirely "dependents" due to wealth transfers (FRB, p. 42). As of 1998, among men aged 65 and older, about 16 percent in the United States and 36 percent in Japan were still in the labor force (Katsumata, 2002). The elderly also contribute a great deal to the informal economy that children do not, for example by maintaining the home and educating youth. In many countries, the human capital of retirees is being squandered by disassociating them from the community and family.

The "demographic dividend," also called "demographic bonus," refers to the eventual effect from a period of high fertility rates. The demographic dividend has been used to explain the "miraculous" economic growth rates in Southeast Asia, which followed a baby boom generation that matured into workers and created a favorable dependency ratio (FRB, p. 22). This explanation of the success of the "Asian Tigers" is undermined by the absence of such an effect from the U.S. baby boom, as well as other data.[3] Europe is said to suffer now from a "demographic deficit." Again, these terms dismiss the fact that young dependents are economic liabilities for at least 15 years—possibly greater liabilities than old dependents (Day, 2004). Furthermore, most everyone retires eventually, so—barring incessant population increase and infinite natural capital—a more appropriate term would be "demographic loan."[4]

Health care and general living costs for the elderly must be compared with the same costs for young dependents, who also incur the costs of pre- and post-natal care, and primary and secondary education. Policymakers must consider the financial burden of public schooling, publicly funded childcare, and pro-natal poli-

cies. Direct need-based payments in 2001 were distributed among 37 percent of American households with children. In 2004 the proportion of private expenditures on one child was 33 percent per parent (USDA, 2004). With a fertility rate of about replacement level, this nonetheless rivals payroll and income tax rates. Only a fraction of this revenue is allocated to public programs for elderly care and retirement benefits.

Concentrating on the old-age dependency ratio facilitates a more positive outlook on immigration as a means of increasing the percentage supply of labor, since immigrants typically have proportionally higher fertility rates. Despite apparent consensus in the literature that, as David Coleman observes, "immigration cannot solve problems in population aging except at rates of immigration so high that they would generate economically and environmentally unsustainable population growth rates and permanently and radically change the cultural and ethnic composition of the host population," a significant proportion of authors in both fora explore strategies to intensify migration (UNECE, p. 22).

The pay-as-you-go (PAYG) pension system is running an imbalance of taxpayers versus retirees, but like any pyramid scheme, PAYG cannot last without an incessantly growing global population. Confusingly, several authors speak of children as tangible forms of human capital. Paul Demeny echoes Julian Simon's circular reasoning that humans are the only "resource" that matters to the long-term economy: "In the long run demography is the most important factor shaping human destiny" (UNECE, p. 4). Simon Kuznets (1960) argues that a growing population augments the stock of useful knowledge, and that increasing the "number of creators of new knowledge" will automatically increase returns per capita. However, such perspectives falsely assume that human capital, or productive knowledge, develops without investment. One exception to this perspective is found in economist Nancy Birdsall's discussion of "poaching" nurses from poorer countries to exploit cheaper wages (FRB, p. 466).

The UNECE forum took a more appropriate perspective on human rights and community issues, since fiscal or monetary policies may be ineffective ways to address demographic concerns, except to aid economic stability. Jacob A. Frenkel, former governor of the Bank of Israel, states that "there is no more dangerous monetary policy than to deal with demography" (FRB, p. 477).

Other policy tools suggested, but not truly explored, include helping communities to develop and maintain social capital. UNECE scholars, such as Ursula Haubner and Anne H. Gauthier, advocate policies that promote "intergenerational solidarity" and aim to increase fertility through so-called "family-oriented" policies that would facilitate generation and maintenance of social and human capital regardless of the demographic circumstances (UNECE, pp. 59, 61, 95).

Neither publication explicitly scrutinizes the role of social capital as the costs of dependents shift from private (children) to public (pensioners), for example by exploring urban development or nuclear family patterns. For much of the human experience, society did not privilege the biological relationship such that parents and children excluded themselves from the community. Anthropologically, today's narrow connotation of family is quite new; many cultures make no linguistic distinction between family and community (Sabean, 1983). Contemporary suburban development sprawl is far more taxing on every type of capital than more community-oriented urban development with fewer roads, shorter commutes, and greater conservation.

Both fora lack discussion of "defensive expenditures," which are resources spent on recovering losses incurred by myopic policies or unneighborly economic activity. This omission is akin to addressing a city's water use without discussing leaky pipes. Most countries' economies have many leaks; reducing these losses through conscientious policy could greatly relieve novel outlays arising from demographic change, as well as reallocate capital toward production rather than recovery.

Behavioral issues affecting health are discussed only as they contribute to increased mortality in the UNECE transition countries of Eastern Europe and the former Soviet Union. In 2000, more than 60 percent of U.S. deaths were from diseases attributable to poor diet, inactivity, or smoking (National Center for Health Statistics, 2004). Disposable income spent on medical care in 2003 represented 12 percent of GNP.[5] One assessment of defensive expenditures, plus a monetized assessment of lost natural capital (including the depletion of nonrenewable mineral fuels, topsoil loss, eradication of economically relevant biodiversity, and depletion of freshwater resources), would reduce U.S. income in 2004 by $7 trillion (Ventetoulis & Cobb, 2004).

Ecological economists must contribute to the discussion of global demographic change to help seek policies that allow a reasonable population decrescendo without intruding on human welfare. These discussions must include issues of scale and distribution, especially as international trade obscures local resource scarcity and global resource decline. The exclusion of natural capital exhaustion, or "base capital," handicaps these and other policy discussions about the effects of demographic change on long-term economic integrity and global human security.

Both publications suggest that we can address below-replacement fertility by augmenting the working population, encouraging immigration, increasing the retirement age, or increasing employment rates of older women and young adults. However, we must explore other options as well, such as policies that protect and augment natural, social, and human capital through urban development, fiscal policy, and economic systems that enhance the labor force through greater equity and empowerment. These two publications move the policy debate forward, but they fall far short of touching on all the complexities of global demographic change. Both could be improved by integrating perspectives that regard humans as individuals, social animals, and subjects of a closed, global ecosystem.

Notes

1. Available online at http://www.unece.org/pau/epf/ndr.htm

2. Available online at http://www.kansascityfed.org/Publicat/sympos/2004/sym04prg.htm

3. Based on data from the U.S. Bureau of Economic Analysis and the Bureau of Labor Statistics, from 1960 to 2005 formal workers rose from about 38 percent to 51 percent of the population, while the average rate of GDP growth per capita declined slightly. On the other hand, from 1952-1962 the formal support ratio fell from 40.6 percent to 38 percent while per capita GDP nonetheless rose. Average annual GDP growth has ranged between 1.6 and 2.3 percent since 1980 for Canada, Australia, Japan, France, Germany, Italy, the Netherlands, Sweden, the United Kingdom, and the United States, despite huge differences in the growth and size of the workforce relative to the nonworking population.

4. I would not advocate using this term, however, since children also come with substantial transaction fees and interest rates (to continue the distasteful metaphor). This includes cash and non-cash benefits like food stamps, Medicaid, rent subsidies, and energy assistance (U.S. Census Bureau, 2005).

5. See Table 2.4.4U, "Chain-Type Price Indexes for Personal Consumption Expenditures, Medical Care" and Table 2.4.5U, "Personal Consumption Expenditures by Type of Product, Medical Care" in the Bureau of Economic Analysis, National Economic Accounts' National Income and Product Accounts tables.

References

Day, Lincoln H. (2004, September/October). "The positive side of older populations to come." *WorldWatch Magazine*, 55-57.

Douglass, Carrie B. (2005). *Barren states: The population "implosion" in Europe*. New York: Berg Publishers.

Katsumata, Yukiko. (2002). "The impact of population decline and population ageing in Japan from the perspectives of social and labour policy." *Population Bulletin of the United Nations, 44/45*. New York: United Nations Publications.

Kuznets, Simon. (1960). "Population change and aggregate output." In A.J. Coale (Ed.), *Demographic and economic change in developed countries*. Princeton, NJ: Princeton University Press.

Livi-Bacci, Massimo. (2001). *A concise history of world population: An introduction to population processes* (3rd revised ed.). Oxford, UK: Blackwell Publishers.

Lutz, Wolfgang, Brian C. O'Neill, & Sergei Scherbov. (2003, March). "Europe's population at a turning point." *Science 299,* 1991-1992.
National Center for Health Statistics, Centers for Disease Control and Prevention, U.S. Department of Health and Human Services. (2004). "Deaths: Final data for 2004." *Health E-Stats.*
Sabean, David Warren. (1983). "The history of the family in Africa and Europe: Some comparative perspectives." *The Journal of African History 24*(2), 163-171.
U.S. Census Bureau. (2005). *Living arrangements of children: 2001.* Washington, DC: U.S. Census Bureau.
U.S. Department of Agriculture (USDA). (2004). *Expenditures on children by families.* Washington, DC: USDA.
Ventetoulis, Jason, & Cliff Cobb. (2004). *Genuine progress indicator: 1950-2002 (2004 update).* Oakland, CA: Redefining Progress. Available online at http://www.rprogress.org/publications/2004/gpi_march2004update.pdf

HIV/AIDS and the Threat to National and International Security

Edited by Robert L. Ostergard, Jr.
Basingstoke, UK: Palgrave Macmillan, 2007. 256 pages.

Reviewed by HARLEY FELDBAUM

Harley Feldbaum is the associate director of the Global Health Initiative at the Johns Hopkins School of Advanced International Studies.

The study of the relationship between HIV/AIDS and national security is a fast-growing field, and so it is a shame that *HIV/AIDS and the Threat to National and International Security* spent years in publishing limbo. The majority of the papers in this volume were written before 2003 and therefore do not address recent developments in government responses to the pandemic, increases in the provision of antiretroviral treatment in developing countries, and newer estimates of HIV/AIDS prevalence among armed forces. However, this flaw is not fatal; the book provides a well-organized overview of the linkages between HIV/AIDS and national security, as well as examinations of the likely impact of these links on specific countries. The authors make the case that the HIV/AIDS epidemic is undermining economic growth, state capacity, and national security while simultaneously demanding increased state action and resources to fight the disease.

Edited by Robert L. Ostergard, Jr., the volume is divided into four parts, comprising an introductory framework and sections on the armed forces, political economy, and state capacity. Catherine Boone and Jake Batsell lead off with the claim that political science has much to learn by studying HIV/AIDS, and could contribute to our understanding of the pandemic's political and institutional impacts. Structured around five research questions selected to demonstrate the highly political nature of HIV/AIDS in Africa, the article begins with the seminal question: What explains the differences in state responses to the spread of HIV/AIDS in Africa? The authors find that traditional political science explanations, including rational choice theory, regime type, and economic and bureaucratic development, fail to account for the success of Uganda and Senegal, and the relative failure of Zimbabwe and Kenya, in addressing HIV/AIDS. They argue for increased research on the political mechanisms that enabled successful responses, but sadly, they fail to note that viewing HIV/AIDS as a threat to national security was an important component of the strong Ugandan and Thai responses (Putzel, 2004; United Nations Development

Programme, 2004). The authors' other research questions focus on the role of NGOs in fighting HIV/AIDS, and the impact of the disease on the "Washington consensus," North-South tensions, and international regime formation.

Susan Peterson's chapter, adapted from an article originally published at the end of 2002, offers a skeptical perspective on the national security implications of HIV/AIDS for the United States, asking whether it is politically useful to present HIV/AIDS as a threat to national security.[1] Peterson argues that infectious diseases are most likely to threaten national security by creating economic and political instability in highly affected states and by eroding military readiness. She concludes that while these processes represent a staggering humanitarian problem, they do not directly threaten U.S. national security. Because the empirical links between HIV/AIDS and U.S. national security are weak, Peterson argues that appealing to the national security interests of powerful states to justify increased action on HIV/AIDS will likely fail. Furthermore, she fears that appealing to the national security interests will relieve powerful states of their moral responsibility to address humanitarian crises and may undermine trust in efforts to control the disease. Her chapter would have benefited from considering the recent history of the President's Emergency Plan for AIDS Relief (PEPFAR), which largely contradicts her conclusion that linking disease to national security offers no benefits and relieves states of their moral obligation. Despite this problem, her presentation of the differences between human and national security, the links between HIV/AIDS and national security, and the question of whether HIV/AIDS should be viewed as a threat to national security are all valuable contributions.

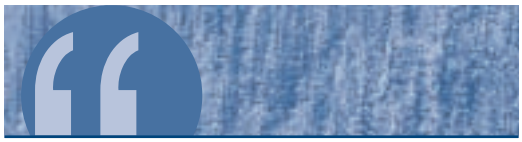
Robert Ostergard concludes the first section with a nuanced discussion of national security threats and the complexity of the security challenge presented by HIV/AIDS. Ostergard argues that immediate threats to territory and government institutions are "hard" security threats that will generate rapid political action, while longer-term threats to populations are "soft" security threats of lower priority. Addressing the security implications of HIV/AIDS is complex because the disease is a "soft" threat that presents an indirect and longer-term threat that varies with the prevalence of the epidemic. Ostergard concludes that HIV/AIDS may induce a "downward spiral" where the disease undermines state capacity at the exact time that strong capacity is needed to curtail the HIV/AIDS epidemic.

The second section looks at the impact of HIV/AIDS on militaries, peacekeepers, and warfare in Africa. Stefan Elbe and Ostergard convincingly argue that the high prevalence of HIV/AIDS among African militaries and use of the disease as a weapon of war through the practice of rape are elevating the social costs of armed conflict in Africa. In the context of widespread HIV/AIDS epidemics, armed conflicts could increase the number of overall casualties by straining medical facilities, creating demographic disruptions that increase vulnerability to HIV/AIDS, spreading the disease into previ-

ously unaffected rural areas, and reducing efforts to prevent and treat the disease. Elbe and Ostergard conclude that addressing these links will require greater participation by African militaries in HIV/AIDS programs, increased focus on HIV/AIDS during conflicts, and security sector support for broader public health efforts to fight HIV/AIDS.

Preeti Patel[2] and Paolo Tripodi complete this section with a somewhat haphazard review of the links between HIV/AIDS and peacekeepers. They summarize data that suggest that militaries have higher rates of HIV/AIDS and sexually transmitted diseases than civilian populations, which they argue is due to the masculine military culture, long deployments away from home, and the relative wealth of peacekeepers compared to local populations. This section suffers the most from the publishing delays, as it does not incorporate recent downward revisions of HIV-prevalence estimates among armed forces reported by a number of authors (Feldbaum, Lee, & Patel, 2006; Garrett, 2005; Whiteside, De Waal, & Gebre-Tensae, 2006).[3]

The third section tackles the political economy of HIV/AIDS and security, although none of the three articles in this section draws substantive links to national security. Nana Poku and Bjorg Sandkjaer describe Africa's deadly predicament as HIV/AIDS decreases economic growth and development while demanding new resources and state capacity to provide treatment and prevention programs.[4] They strongly argue against structural adjustment programs and for debt cancellation to aid states fighting HIV/AIDS—however, their arguments could have used an update on the recent successes and limitations of debt-canceling agreements. The two chapters by Susan Sell and Christopher May examine intellectual property rights and the Campaign for Access to Essential Medicines as they relate to state efforts to fight the HIV/AIDS pandemic. While these political issues are important, the authors never draw explicit links to national security and the rationale for including these chapters is unclear.



The authors make the case that the HIV/AIDS epidemic is undermining economic growth, state capacity, and national security while simultaneously demanding increased state action and resources to fight the disease.

In the final section, Jeremy Youde's well-argued article on the insidious impacts of HIV/AIDS on democratic stability and legitimacy in Africa posits that the epidemic may undermine elections: Onerous voter registration requirements could disenfranchise AIDS patients and their caregivers, while governments could manipulate election results by keeping those killed by AIDS on voter rolls. Furthermore, HIV/AIDS threatens to decimate civil society and slow economic growth, thus impeding democratization. However, Youde could have updated his arguments with data drawn from actual elections held since his article was originally published in 2001.

Robert Compton examines HIV/AIDS in China and India due to their growing epidemics and huge populations. These two states are strategically important "second wave" states (along with Russia, Nigeria, and Ethiopia) and subjects of U.S. intelligence reports (Gordon, 2002). Compton identifies risk factors that will increase the spread of HIV/AIDS in both states, but he argues that economic growth and strong state capacity, as

well as lessons learned from Africa and Southeast Asia, will prevent the disease from threatening the national security of either country. To adequately address HIV/AIDS and avoid a decline in political legitimacy, he recommends that China further liberalize its political system while India should work to overcome its decentralized political system.

In the book's concluding chapter, Andrew Price-Smith, Matthew Tubin, and Robert Ostergard argue that the HIV/AIDS epidemic is one of South Africa's greatest humanitarian crises, and therefore a threat to the nation's security. In addition to its massive mortality, the authors identify three ways HIV/AIDS poses an indirect threat to South Africa's political and economic stability: First, HIV/AIDS could undermine the government's ability to provide services, including health care, as the need for services increases due to the impact of HIV/AIDS. Second, South Africa's contribution to regional stability could decrease as the epidemic affects its armed forces and draws resources away from foreign policy. Finally, the macro- and microeconomic impacts of the disease may jeopardize South Africa's economic stability. This "downward spiral" argument provides cause to worry, but would be more convincing if the authors had also considered how increased availability of antiretroviral treatment might limit the disease's worst implications.

In conclusion, most of this book's faults stem from including articles that have not been substantially updated since 2003. *HIV/AIDS and the Threat to National and International Security* still contributes to our understanding of the ways in which HIV/AIDS undermines state capacity and national security, but the book should be read critically and in conjunction with other recent publications on the links between the pandemic and national security.

Notes

1. Elbe (2006) also seeks to address the question of whether HIV/AIDS should be securitized in an excellent follow-up to Peterson (2002).

2. Disclosure: I worked closely with Preeti Patel at the London School of Hygiene and Tropical Medicine.

3. Whiteside, De Waal, and Gebre-Tensae's (2006) skeptical examination of "accepted wisdoms" about HIV/AIDS, militaries, and security should be consulted for a fuller perspective. Two other articles that provide excellent overviews of the relationship among HIV/AIDS, militaries, and peacekeepers are Elbe (2003) and Bazergan (2004).

4. See related article by Nana Poku, "HIV/AIDS and Governance in Africa," in this report (pages 30–36).

References

Bazergan, Roxanne. (2004). *HIV/AIDS: Policies and programmes for blue helmets*. Pretoria, South Africa: Institute for Security Studies.

Elbe, Stefan. (2003). *Strategic implications of HIV/AIDS*. Oxford, UK: Oxford University Press.

Elbe, Stefan. (2006). "Should HIV/AIDS be securitized? The ethical dilemmas of linking HIV/AIDS and security." *International Studies Quarterly 50*, 121-146.

Feldbaum, Harley, Kelley Lee, & Preeti Patel. (2006). "The national security implications of HIV/AIDS." *PLoS Medicine 3*(6), e171.

Garrett, Laurie. (2005). *HIV and national security: Where are the links?* New York: Council on Foreign Relations.

Gordon, David F. (2002). *The next wave of HIV/AIDS: Nigeria, Ethiopia, Russia, India, and China*. Langley, VA: National Intelligence Council.

Peterson, Susan. (2002, Winter). "Epidemic disease and national security." *Security Studies 12*(2), 43-81.

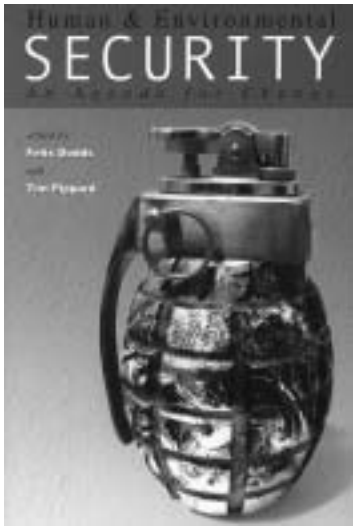
Putzel, James. (2004). "The politics of action on AIDS: A case study of Uganda." *Public Administration and Development 24*, 19-30.

United Nations Development Programme (UNDP). (2004). *Thailand's response to HIV/AIDS: Progress and challenges*. Bangkok, Thailand: UNDP.

Whiteside, Alan, Alex De Waal, & Tsadkan Gebre-Tensae. (2006). "AIDS, security and the military in Africa: A sober appraisal." *African Affairs 105*(419), 210-218.

Human and Environmental Security: An Agenda for Change

Edited by Felix Dodds and Tim Pippard
London: Earthscan Publications Ltd., November 2005. 320 pages.



Reviewed by KAREN O'BRIEN

Karen O'Brien chairs the Global Environmental Change and Human Security Project. She is an associate professor in the Department of Sociology and Human Geography at the University of Oslo, Norway, and a lead author on the adaptation chapter for the Intergovernmental Panel on Climate Change *Fourth Assessment Report.*

Edited books can be deceptive, particularly if one judges them solely on the table of contents or a quick skim of the first and last chapters. I might have deemed *Human and Environmental Security: An Agenda for Change* as a mainstream, United Nations-focused publication on traditional notions of security, sustainable development, and global governance, had I not randomly opened to Chapter 6 and started to read.

Jan Pronk's chapter, "Globalization, Poverty, and Security," begins with rather ordinary praise for the Millennium Development Goals (MDGs), but evolves into one of the most insightful critiques that I have read. Pronk, the former Dutch minister of environment and special representative of the Secretary-General of the United Nations in Sudan, analyzes the links connecting globalization, poverty, and security and captures some of the pressing issues facing human security in the 21st century. He argues that globalization has changed the nature of capitalism, with more people excluded from the system than exploited by it, which reinforces a system of global apartheid. The excluded are considered dispensable, as neither their labor nor their potential buying power is needed to fuel today's global economy. In other words, some people simply do not matter in the evolving capitalist economy. Pronk criticizes the "US$1-a-day" benchmark in the MDGs, arguing that poverty is not just a lack of money and income, but a lack of opportunities, which are more dependent upon assets, entitlements, and rights than on dollars. Pronk does not feel the MDGs are theoretically unachievable, but rather that they will not be achieved for practical reasons: Dramatic environmental changes taking place today have a greater impact on the world's poorest people, and, at the same time, environmental risks have lost the competition for attention to traditional security risks, including the recent emphasis on terrorism.

Now inspired to read *Human and Environmental Security* from cover to cover, I was rewarded with many thought-provoking insights. The book's 19 chapters are written primarily by policymakers and practitioners, reflecting the authors' extensive experience with international issues and institutions. It was sometimes difficult to keep track of the many high-level panels and commissions mentioned, as well as almost 150 acronyms used (fortunately listed at the front of the book). Overall, the contributions provided reassuring evidence that critical questions are being discussed and debated in the policy, practitioner, and academic communities.

As with many edited books, some of the chapters are less exciting than others, with some coming across as advocacy pieces and others as descriptive reports. For example, some authors present arguments in support of the UN's Peacebuilding Commission and the UN Environment Organization, without attention to alternatives or critiques. Likewise, other chapters competently summarize important issues such as food security, water security, and climate change, without provoking readers with genuinely new perspectives. However, on the

The threat agenda is not limited to terrorism or weapons of mass destruction, but instead includes poverty, environmental degradation, pandemic diseases, the spread of organized crime, and failed states.

whole the book provides a good overview of the context for security in the 21st century.

The book is divided into three sections: "Peace and Security," "Sustainable Human Development," and "Global Governance." Despite this broad coverage, the book includes very little discussion of concepts and theories, particularly the distinction between human security and environmental security, and how these both differ from and relate to traditional notions of security. It would have been worthwhile to draw on the analyses of Jon Barnett (2001), Simon Dalby (2002), or Des Gasper (2005), for example, to help place the different perspectives in the book within a theoretical framework.

Chapter 3, "Human Security and the War on Terror," by Oliver Richmond and Jason Franks is a notable exception: The authors discuss the differences between traditional, state-centered security and human security, noting that the latter is rooted in the broad, development-based, human-needs approach (often associated with the UN Development Programme) that views basic welfare as the best indicator of security. Discourses on human security consider individuals the unit of analysis, claim universality, assume global interdependence, and argue that prevention is probably the best course of action. The authors ask how far this human security discourse represents an attempt by states, willingly aided by international actors, to impose a liberal political agenda on societies, thus making human security a covert partner in the war on terror by their shared emphasis on creating a "safe" world.

Yet many of the authors consider human security only in its broadest definition of freedom from fear and freedom from wants. While easy and memorable, this definition fails to capture the depth and significance of human security. As freedom from fear and wants, the concept can be easily ignored or disregarded, especially in an age when fears and wants are continually and deliberately produced and reproduced across the globe. Indeed, the contemporary global economic system is designed to breed and feed an unlimited number of wants, while at the same time the political systems, supported by a globalized media, thrive on a culture of fear—whether it is of terrorism, bird flu, or people regarded as "the other."

Fear and wants are not always negative attributes, a perspective frequently ignored. Christine Durbak and Claudia Strauss point out in their chapter, "Securing a Healthier World," that fear is a common human feeling—including the fear of change. They acknowledge that fear may be a useful technique for controlling a population, but at some point it turns into paranoia, and paranoia blocks the abilities of leaders and citizens to differentiate reality from fantasy, and thus prevents them from responding to reality rather than fantasy. In Chapter 14, "Urban Security," Anna Tibaijuka notes that the development of the private security industry in urban areas actually builds a climate of fear and fosters social isolation and fragmentation, which creates more insecurity and fear. Wants often serve as the basis for development, innovation, and creative solutions. Yet unfettered consumerism, even if it is ethical or "green," raises some important questions that are brought out by Hannah Griffiths in her chapter on corporate responsibility, including "whether some of the things we demand as consumers we simply could not have in a fair and equal world" (p. 228). Defined as freedom from fears and freedom from wants,

the concept of human security is not surprisingly often tossed aside as "empty," while traditional, state-centered notions of security are bolstered by the seemingly endless expansion of wants and fears.

Alternatively, we could consider human security achieved when and where individuals and communities have the options necessary to end, mitigate, or adapt to threats to their human, environmental, and social rights; have the capacity and freedom to exercise these options; and actively participate in pursuing these options (Global Environmental Change and Human Security Project, 1999). Such an understanding of human security calls for not only protection from threats, fears, and wants, but also for empowerment, which is a key component of the Commission on Human Security's definition (Commission on Human Security, 2003). Felix Dodds, in the final chapter, "Democracy in an Uncertain World," calls for mobilizing stakeholders and widening the debate among those who influence decisions and those who are affected by them. He emphasizes that the changes needed to enhance both environmental and human security demand opening up—not closing down—societies, which depend on an ever-vigilant and vibrant civil society.

Human and Environmental Security makes a strong case for the link between security and development, citing Kofi Annan's claim that there can be no sustainable security without development, and no sustainable development without security. Chapter 1 by David Hannay focuses on the underlying themes of the 2004 report of the High-Level Panel on Threats, Challenges, and Change, which is part of an ambitious UN reform program. The most important of these themes, which runs throughout the book, is that the threat agenda is not limited to terrorism or weapons of mass destruction, but instead includes poverty, environmental degradation, pandemic diseases, the spread of organized crime, and failed states. While the security industry likes to think in terms of "soft" and "hard" threats, Hannay points out that these characterizations are misleading and inadequate because most of these threats are interconnected and overlapping. He calls for institutional reform, including a stronger, more professional UN Secretariat, and a secretary-general with more control over human resources and more authority to respond flexibly to urgent priorities. Many of the authors argue that the UN is indispensable to the international community it serves; while this is an important message, if it were the book's only one, it would not be worth reading.

Achieving theoretical and conceptual clarity about human and environmental security is not necessary for understanding the strong need for change. Perhaps one of the most important questions in the book is raised by Jim Garrison in Chapter 15. Although his question focuses on the United States, it is certainly relevant to a much broader audience: "Can it prevent the repetition of the most ancient pattern in human history: that real change never actually comes until after a crisis? Can the human community break out of this chain of cause and effect?" (p. 207). *Human & Environmental Security: An Agenda for Change* makes it clear that in the 21st century, this may not be an option, but a necessity.

References

Barnett, Jon. (2001). *The meaning of environmental security: Ecological politics and policy in the new security era.* London: Zed Books.

Commission on Human Security (CHS). (2003). *Human security now.* New York: CHS. Available online at http://www.humansecurity-chs.org/finalreport/English/FinalReport.pdf

Dalby, Simon. (2002). *Environmental security.* Minneapolis, MN: University of Minnesota Press.

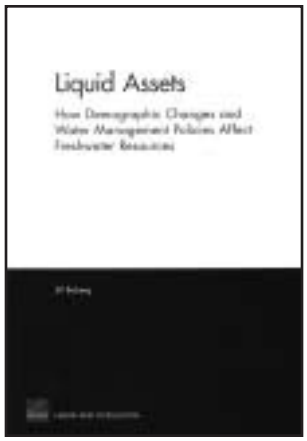
Gasper, Des. (2005). "Securing humanity: Situating human security as concept and discourse." *Journal of Human Development 7*(2), 221-245.

Global Environmental Change and Human Security Project (GECHS). (1999). *Science plan* (IHDP Report No. 11). Bonn, Germany: GECHS. Available online at http://www.ihdp.uni-bonn.de/html/publications/reports/report11/gehssp.htm

Liquid Assets: How Demographic Changes and Water Management Policies Affect Freshwater Resources

By Jill Boberg
Washington, DC: RAND Corporation, 2005. 124 pages.

Reviewed by RUTH MEINZEN-DICK



Ruth Meinzen-Dick is a senior research fellow at the International Food Policy Research Institute (IFPRI) in Washington, D.C., where she conducts research on water policy, property rights, and collective action. She has published more than 70 journal articles and book chapters, as well as 10 books and monographs, including *Negotiating Water Rights* (Vistaar and Intermediate Technology Publications, 2000) and *Water Rights Reform: Lessons for Institutional Design* (IFPRI, 2005).

Water scarcity and "water wars" are increasingly common topics in the popular media and academic discourse. The logic seems straightforward: Freshwater resources are finite; people need water for a variety of productive and consumptive uses, so rising populations will put more pressure on limited water supplies. *Liquid Assets* by Jill Boberg examines the relationships between demographic change and water scarcity, and finds that the links are somewhat more complex.[1] In addition to population growth, urbanization and economic development also affect water demand, and there are a range of options to augment supply and manage demand. The factors Boberg identifies are not new, but she pulls together evidence from a wide range of sources to address different aspects of water supply and demand.

The range of topics and sources in *Liquid Assets* is both an advantage and a disadvantage. The reference list includes many well-known authorities on water and population data, as well as a number of interesting articles. However, Boberg gives each only a passing reference, without delving deeper into important issues, such as how a particular aspect was measured. She acknowledges that measures of water availability and use are complex, but then mixes figures on quantities of water availability, withdrawals, and use in a way that is often misleading. For example, a discussion of the effect of household size on domestic water use cites a study in Australia that "found that the household water budget (milliliters per capita) decreases with increasing household size… from about 1.1 ml per person for a one-person household to 0.5 ml per person for a seven-person household." A closer look at the source article (Lenzen, 2002) indicates that this has little to do with domestic water use: The water budgets include the water used to produce everything the household consumes. Further, Boberg has converted ML (million liters per capita) to milliliters, which are thousandths of a liter—it would be amazing if people could live on that small amount of water for even a day. Such serious errors raise the question of whether the author understands the source material.

From the fragmentary evidence presented in the book, the reader does not get a sense of the magnitude of the effects of the factors cited. For example, the author emphasizes household size as a factor in water demand, but devotes relatively little attention to the effects of rising income and consumption patters, which are likely to have a much larger impact. Many of the water supply and demand factors cited in *Liquid Assets* are also covered by Rosegrant, Cai, and Cline (2002)—a source that Boberg seems to have missed. But Rosegrant et al. go a step further and build a model to assess which policies would help reduce the impact of water

scarcity, and point to hotspots of water scarcity in the important food-producing basins of China, India, West Asia/North Africa, and the western United States.

Although *Liquid Assets* aims to go beyond simplistic analysis, it ends up perpetuating a number of water myths. For example, the book discusses the "inefficiency" of irrigation, arguing that reallocating a small percentage of water from irrigation could meet other needs. But it does not refer to the research that demonstrates that water "losses" from one farm form a source of recharge for other water users in the basin, and hence basin-level efficiencies are much higher (Seckler, 1996). Furthermore, meeting growing urban and industrial water demands is rarely a matter of transferring a small portion of water from all irrigation, but rather a large proportion of the water from some farmers and some communities, disrupting livelihoods and provoking social and political repercussions.

Boberg discusses watershed rehabilitation as one response to water scarcity, but focuses on reforestation. But Swallow, Garrity, and van Noordwijk (2001) point out that deforestation does not reduce water flows: Trees use more water than other kinds of vegetation. Thus, South Africa's "Working for Water" program invested considerable effort to remove exotic tree species from the watersheds. It is not, as Boberg states, that "the long-term benefits of nonuse or rehabilitation fare poorly against short-term political or human goals," but that there is a mismatch between those who bear the costs and those who are likely to derive the benefits (p. 67).

The book's discussion of privatization as a demand management response follows the common problem of conflating private *ownership* of the water resources with private sector *involvement* in domestic water supply deliveries. Here, as in other places in the book, the lack of attention to the political sensitivities regarding water is a serious shortcoming.

Finally, the book includes a number of interesting tables and graphs of water use data. Unfortunately, a mismatch between the book's Figure 3.1 and the original data in the cited source makes me dubious of any data as presented in this book. Between the faulty data and misleading interpretations, *Liquid Assets*' greatest value lies in the reference list. But this is hardly a reason to acquire the volume, especially in view of the many other sound sources on water and demographics available for both specialized and general audiences.

Between the faulty data and misleading interpretations, *Liquid Assets*' greatest value lies in the reference list.

Note

1. Available online at http://www.rand.org/pubs/monographs/2005/RAND_MG358.pdf

References

Lenzen, Manfred. (2002). "The influence of lifestyles on environmental pressure." *Year book Australia 2002: Environment, 2002.* Australian Bureau of Statistics. Available online at http://www.abs.gov.au/ausstats/abs@.nsf/94713ad445ff1425ca25682000192af2/372480889969a1d9ca256b35007ace09!OpenDocument

Rosegrant, Mark W., Ximing Cai, & Sarah A. Cline. (2002). *World water and food to 2025: Dealing with scarcity.* Washington, DC: IFPRI.

Seckler, David. (1996). *The new era of water resources management: From "dry" to "wet" water savings* (International Water Management Institute [IWMI] Research Report 1). Colombo, Sri Lanka: IWMI.

Swallow, Brent M., Dennis P. Garrity, & Meine van Noordwijk. (2001). "The effects of scales, flows and filters on property rights and collective action in watershed management." *Water Policy 3,* 457–474.

The Political Economy of Global Population Change, 1950-2050

(Supplement to Population and Development Review, *Volume 32, 2006)*
Edited by Paul Demeny and Geoffrey McNicoll
New York: Population Council, 2006. 288 pages.

Reviewed by JENNIFER DABBS SCIUBBA

Jennifer Dabbs Sciubba is a doctoral candidate in the Department of Government and Politics at the University of Maryland. She is also a consultant to the Office of the Secretary of Defense for Policy at the U.S. Department of Defense.

In a 1950 edition of *The Saturday Evening Post*, Peter Drucker asked: "Are we having too many babies?" According to Drucker, earlier population experts would have been considered mad if they had predicted that there would be 152 million Americans in 1950—and even more foolish for saying that by 2000 there would be 300 million Americans (we now know that this milestone was only six years off these projections). Drucker's article points out that assuming linear population trends in isolation from other factors will inevitably lead to embarrassment. One of the reasons that demographers in the first half of the 20th century incorrectly projected world population in 1950 was that they failed to account for how the political dynamics leading up to the mid-century mark would affect fertility patterns.

Having heeded this warning, Paul Demeny and Geoffrey McNicoll compiled articles from noteworthy social scientists in *The Political Economy of Global Population Change, 1950-2050* to give readers a view of population in the wider political and economic context. By focusing on this theme, rather than on the population projections themselves, the volume is likely to survive scrutiny by Drucker's equivalent should researchers revisit it in 2050.

The central question in Demeny and McNicoll's book, published as a supplement to the journal *Population and Development Review (PDR)*, asks: What is the fate of worldwide economic prosperity and how are political scenarios likely to play out? Even though economic and political changes may derive from population changes, the editors recognize that answering this question will require a wider group of scholars than population experts. At heart, the collection argues that demography is not necessarily destiny.

While including the broader context is a noble goal—one that is for the most part achieved—the articles within *The Political Economy of Global Population Change* do not contain much new information or even new views on old subjects. The supplement mainly reviews the general consensus on specific population issues, including chapters on major trends, like urbanization, and on the most popular (and thus most frequently analyzed) regions in population studies: Europe, Africa, China, and India. By focusing on only these four areas, Demeny and McNicoll miss an opportunity to say something new about regional population. For instance, demographic scholars continue to overlook Latin America, despite its growing ideological and resource-based power. Its neglect here is unjustified.

The first chapter, "World Population 1950-2050: Perception and Response," in which the editors review some of the major developments in population policy in the United Nations and national agendas, is a bit confusing and often redundant. There are better and more succinct reviews of the history of population policy.

More useful is David Coleman's article on Europe's demographic future, which looks at viable measures European states can take to mitigate economic problems commonly associated with population. He argues that demographic challenges are only a piece of Europe's future problem—the continent already faces numerous institutional challenges that are potentially more hazardous to its economic health. He recommends improving the actual support ratio—i.e., reforming labor markets to bring more latent laborers into the workforce (p. 76); moderating the financial burden of the pay-as-you-go system (p. 78); and investing in improving worker productivity (p. 79). Coleman shows that demography is not a trend in isolation—other factors, such as institutions, are also important. He reminds us that looking at population statistics alone gives an incomplete picture of the future. Another strength is Coleman's reserved view on the potential effects of Europe's population decline. While some more alarmist authors write of the "baby bust" or "gray dawn," Coleman logically demonstrates that population aging may not be as crippling to European economies as these authors suggest because European economies have continued to grow despite already declining worker-to-pensioner ratios (p. 76).

While Christopher Clapham's chapter on Africa is fairly routine, he does offer the fresh view that worries over a continued population boom in Africa are unfounded. He says: "The broad conclusion to be drawn from the HIV/AIDS trajectory is that the problems associated with population *increase* in Africa are likely to be significantly less than has commonly been assumed, whereas the problems associated with population *distribution* and economic development are likely to be significantly greater" (p. 109). This argument suggests that development strategies that focus on reducing fertility are incomplete. Clapham's argument supports the volume's theme that demography is not destiny and reminds us that politics—which in its most basic form is about the distribution of power and resources—has played a leading role in Africa's devastating decline.

What is the fate of worldwide economic prosperity and how are political scenarios likely to play out? Even though economic and political changes may derive from population changes, the editors recognize that answering this question will require a wider group of scholars than population experts. At heart, the collection argues that demography is not necessarily destiny.

Like Clapham's chapter, Eduard B. Vermeer's piece on China is unsurprising, yet thorough. His discussion of gender in China provides a counterpoint to common demographic analyses of the issue, which warn of the likely negative effects of China's gender imbalance (see, e.g., Hudson & den Boer, 2004). Vermeer is more optimistic; he argues that the Communist Party's emphasis on gender equality during its earliest days in power has left a positive legacy in China, where employment is fuller than in other developing (and even developed) states—in 2004, women comprised 45 percent of China's workforce (p. 116).

One of the more unique sections of the collection is Deepak Lal's chapter, which approaches India's demography from a cultural perspective. He argues that India's large population is a blessing, as it is likely to weather the demographic changes of the next 50 years much better than its peers: "[T]he problems of pensions and healthcare for the aged, which are increasingly facing the West and China, are unlikely to be a problem in India, given its shame-based culture and the continuing hold of its traditional cosmological beliefs, which

require the care of the aged within the extended family" (p. 173).

Lal seems to forget that culture changes over time, and much can happen between now and when India begins to age. For centuries, life expectancy in India was low due to diet, climate, and disease, so extended care for the elderly and the costs associated with chronic disease are new challenges. In arguing that India's cultural norms will reduce the burden of caring for the elderly, he neglects to mention that Confucian culture in China, which overtly emphasizes elder care, has not prevented China from facing challenges associated with its soon-to-be rapidly aging population. Japan also has a long-standing tradition of elder care—and even a shame-based culture—and yet is still struggling to balance care for its aged with other economic and social goals.

Finally, J.R. McNeill's chapter on the relationship between population and the environment reminds us to be cautious when drawing conclusions about the relationship between these variables in the future. McNeill aptly points out two major uncertainties: technology, which he says is unpredictable in both its timing and effects; and politics, especially in the arenas of energy and the environment (p. 195-196). To this I might add economics, specifically the commodification of the environment and the role of hedge funds, which have recently had destabilizing effects on the price of oil.[1]

Overall, *The Political Economy of Global Population Change* is useful for reminding us that we must consider the context within which demographic trends take place when extrapolating from them. While not essential reading for those well-versed in population studies, this supplement would be useful for policymakers seeking to understand the role of demography in the wider politico-economic sphere, or for scholars new to population studies. Those concerned with development and population policy would benefit most. While the editors do not directly answer the question that framed the book—what is the fate of worldwide economic prosperity and how will political scenarios play out?—they do convince readers to consider the role of social, economic, and political institutions when discussing the demographic future.

Notes

1. The role of hedge funds could have an effect because analysts are already expecting developing countries with large populations to have an effect on markets, and this anticipation is reflected in current investment behavior.

References

Drucker, Peter F. (1950, May 6). "Are we having too many babies?" *The Saturday Evening Post 222*(45), 40-41, 154-158.

Hudson, Valerie M., & Andrea M. den Boer. (2004). *Bare branches: The security implications of Asia's surplus male population.* Cambridge, MA: MIT Press.

Luke, Nancy, & Susan C. Watkins. (2002). "Reactions of developing-country elites to international population policy." *Population and Development Review 28*(4), 707-733.

State of World Population 2005: The Promise of Equality: Gender Equity, Reproductive Health and the Millennium Development Goals

By United Nations Population Fund (UNFPA)
New York: UNFPA, 2005. 128 pages.

State of World Population 2006: A Passage to Hope: Women and International Migration

By UNFPA
New York: UNFPA, 2006. 108 pages.

Reviewed by JENNIFER W. KACZOR

Jennifer W. Kaczor was program associate for the Environmental Change and Security Program at the Woodrow Wilson Center from 2001-2005.

At the 2000 Millennium Summit, the largest gathering of world leaders in history adopted the UN Millennium Declaration, setting a series of specific targets now known as the Millennium Development Goals (MDGs). To be met by 2015, the goals include reducing extreme poverty and hunger; achieving universal primary education; promoting gender equality and empowering women; reducing child mortality; improving maternal health; combating HIV/AIDS, malaria, and other diseases; ensuring environmental sustainability; and developing a global partnership for development.

The 2005 edition of UNFPA's annual *State of World Population* report, *The Promise of Equality: Gender Equity, Reproductive Health and the Millennium Development Goals,* argues convincingly for linking increased access to reproductive health to achieving the MDGs.[1] When the MDGs were first announced, critics from the reproductive health community decried the lack of an indicator for increasing access to family planning. Given the general environment of "summit fatigue," the political environment in the United States, and attitudes in some developing countries toward contraception, MDG planners did not add a family planning indicator to avoid losing support. In its wake, the family planning community produced a hailstorm of reports demonstrating that investments in family planning were integral to achieving the MDGs.

UNFPA's 2005 report synthesizes this research. In addition to family planning, *State of World Population 2005* explores a wide range of reproductive health issues and their relationship to achieving the MDGs. The report includes material from many sources; little is new, but this synthesis offers a valuable resource for professionals looking to write briefs on the issue.

The nine chapters cover a grab-bag of reproductive health issues, including: human rights and reproductive health; improving maternal health, ending gender-based violence; adolescents and reproductive health; increasing men's involvement in reproductive health; and improving reproductive health care in humanitarian crises. The report's "Overview" succinctly lists the links between each MDG and reproductive health in an easy-to-read chart (pp. 6-7). "Partnering With Men" highlights innovative programs, including HIV prevention and education projects in developing-country militaries and workplaces, as well as leadership programs that encourage both young and old men

The report correctly calls for using a tandem approach of working within gender norms while educating both men and women on the importance of women's equality, especially in the areas of education and economic opportunities.

to educate their families and communities. The report correctly calls for using a tandem approach of working within gender norms while educating both men and women on the importance of women's equality, especially in the areas of education and economic opportunities. "Strategic Investments" provides an excellent synthesis of research demonstrating the importance of investment in increased access to reproductive health care (including family planning), as well as in girls' education and economic opportunities for women. Although not news to the development community, this well-written section is useful for those unfamiliar with the topic.

The importance of economics and strategic investment continues in the 2006 *State of World Population* report, *A Passage to Hope: Women and International Migration*.[2] This edition tackles another politically volatile topic: international immigration. In five chapters the report lays out global migration patterns and women's participation in these movements, in both developed and developing countries. After providing data illustrating the "feminization of migration" (p. 23), other chapters examine the exploitation of women and girls due to trafficking and domestic work, explore the situation of female refugees and asylum-seekers, and discuss migrants' human rights. To their credit, the authors do not attempt to take sides in the immigration debate, but instead synthesize research showing both the pros and cons of migration. They pay special attention to busting myths by providing evidence, for example, that immigrants do not drain social services at a significantly higher rate than natural-born citizens.

The most interesting part of the report focuses on the differences in remittances—money sent back to home countries by immigrants—by age and gender, finding that women tend to remit the most money to their home communities. As developed countries debate immigration in the domestic arena, remittances are clearly an important part of "development aid." By tightening immigration, developed countries could be undermining an existing development strategy.

While sprinkled with examples of successful programs that improve health, reproductive health, and economic situations for migrant women, the report's density of information makes these success stories hard to find. Thus, *State of World Population* 2006 could benefit from an executive summary to avoid turning off busy policymakers.

Notes

1. Available online at http://www.unfpa.org/upload/lib_pub_file/493_filename_en_swp05.pdf

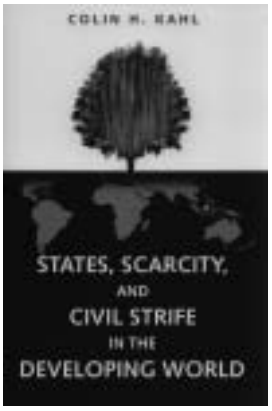
2. Available online at http://www.unfpa.org/swp/2006/pdf/en_sowp06.pdf

States, Scarcity, and Civil Strife in the Developing World

By Colin Kahl
Princeton, NJ: Princeton University Press, 2006. 352 pages.

Reviewed by PATRICIA KAMERI-MBOTE

Patricia Kameri-Mbote is a law researcher and teacher based in Nairobi. She is chair of the Department of Private Law at the University of Nairobi, and program director for the International Environmental Law Research Centre in Nairobi. She has also served as director of research at the African Centre for Technology Studies, Nairobi. She was the first chair of the Kenya Nile Discourse Forum, a network of civil society organizations working with other national discourse forums in the Nile River basin to influence development of projects and programs under the Nile Basin Initiative and other Nile-related programs. She was an Open Society Institute Africa Policy Scholar at the Woodrow Wilson Center in 2006.



The link between environment and conflict has been largely established. As stated by the UN Secretary-General's High-Level Panel on Threats, Challenges, and Change in its 2004 report *A More Secure World: Our Shared Responsibility*, "We know all too well that the biggest security threats we face now, and in the decades ahead, go far beyond states waging aggressive war. They extend to poverty, infectious disease and environmental degradation…" (p. 1). But the role of rapid population growth in conflict is not nearly as well-recognized at high levels, despite a growing body of literature that seeks to incorporate population growth into the linkages between environmental degradation and conflict.

Colin Kahl's *States, Scarcity, and Civil Strife in the Developing World* is an excellent contribution to this literature. Kahl begins by examining existing theoretical perspectives on the connections between demographic and environmental changes in the context of developing countries that have experienced civil strife (most apparently driven by political imperatives). Starting with neo-Malthusian arguments that population growth will lead to deprivation and political upheaval, he examines theories ranging from the "honeypot" hypothesis, where abundant natural resources drives predatory violence; to "Dutch disease" or the "resource curse," which links resource abundance to economic vulnerability and corruption; and "rentier states," where elite control of resources and inequitable distribution of entitlements can engender rebellion.

But Kahl argues that these theories do not incorporate the ways in which the dynamics of state failure and state exploitation mediate the linkages between conflict and population, environmental degradation, and unequal resource distribution. He makes a compelling case for analyzing conflicts more incisively, even when demographic pressures and environmental degradation are evident. Indeed, he amply demonstrates that while demographic and environmental stress (DES)—a composite variable encompassing rapid population growth, environmental degradation, and unequal distributions of renewable resources—can be a powerful cause of civil strife in developing countries, it does not occur in a vacuum. Between DES and civil violence lie critical intervening variables, he argues: group identification (dubbed "groupness") and non-inclusive institutions.

Kahl uses case studies of the instability in the Philippines (1970s/80s) and Kenya (1990s) to illustrate the role of groupness and institutions in shaping the nature, direction, and magnitude of conflicts. He argues that allegiance to ethnic,

While demographic and environmental stress (DES)—a composite variable encompassing rapid population growth, environmental degradation, and unequal distributions of renewable resources—can be a powerful cause of civil strife in developing countries, it does not occur in a vacuum.

religious, and class groupings is critical in the formation of conflict groups, and that non-inclusive institutions—especially in weak states—shorten the conflict continuum by limiting decision-making power to elites. According to Kahl, Kenya was an exclusionary state with a high degree of uneven groupness, creating incentives and opportunities for state elites to exploit the country's natural resource scarcities, thus engendering civil strife.

The dynamism of civil strife situations in developing countries is perhaps the biggest challenge for Kahl's work. DES may only lead to localized violence; explaining sporadic violence in different parts of a country requires the identification of other intervening variables. While the conceptual value of this book is clear, the temporal context of the chosen case studies limits the application of his arguments to the specific periods under examination. For instance, Kenya has experienced violence in diverse parts of the country attributable to both DES and poverty since this work was completed, including conflicts over water in Mai Mahiu; over pasture in northeastern Kenya; and over land in parts of the Rift Valley. In Nairobi, militias have been fighting to control the slums outside of the formal government structures, instituting their own forms of government and exacting taxes on residents ("Thousands flee," 2006). In these cases the intervening variable of group identification is less compelling because want and deprivation overpower the allegiance to ethnic groupings and political party affiliations that were more evident in the clashes in the 1990s.

Despite this limitation, *States, Scarcity, and Civil Strife in the Developing World* is an important step toward improving our understanding of the demographic and environmental linkages to conflict, and is of great conceptual value to academics, policymakers, and researchers interested in raising the level of this growing field.

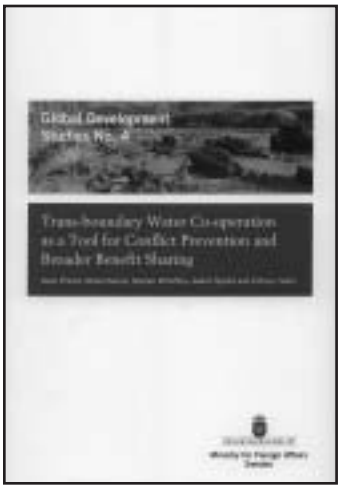
References

High-Level Panel on Threats, Challenges, and Change. (2004, December). *A more secure world: Our shared responsibility.* New York: United Nations. Available online at http://www.un.org/secureworld/report2.pdf

"Thousands flee their homes as slum death toll goes up." (2006, November 9). *Daily Nation,* p.1.

Trans-boundary Water Co-operation as a Tool for Conflict Prevention and Broader Benefit Sharing

By David Phillips, Marwa Daoudy, Joakim Öjendal, Stephen McCaffrey, and Anthony Turton
Stockholm, Sweden: Ministry for Foreign Affairs, Sweden, 2006. 250 pages.



Reviewed by SHLOMI DINAR

Shlomi Dinar is an assistant professor in the Department of International Relations and Geography at Florida International University. His research focuses on transboundary water issues. His most recent publication is *International Water Treaties: Negotiation and Cooperation along Transboundary Rivers* (Routledge, 2007).

While *Trans-boundary Water Co-operation as a Tool for Conflict Prevention and Broader Benefit Sharing* considers several issues, including the link between international water law and water and security, it investigates two main points: (1) the role of benefit-sharing in transboundary water cooperation; and (2) the use of such cooperation as a tool for broader conflict prevention.[1] These two important pillars in the study of transboundary water help us understand conflict and cooperation over freshwater and promote better international policies such as mediation and financial assistance. The report focuses on three basins: the Jordan River, the Kagera River (along with the Nile River), and the Mekong River. In these case studies the authors consider not only some of the basin-related affairs but also joint water management scenarios as regional development efforts. To assist academics and policymakers in analyzing benefit-sharing opportunities, the authors propose a model that includes environment, economic development, and security parameters, which is dubbed Inter-SEDE for its three drivers.

Inter-SEDE is perhaps the authors' principal contribution to the literature. The model provides an interesting method for examining the potential for development—and hence prospects for benefit-sharing—in the basins under investigation. The model can be used to compare basins according to security, economic, and environmental indicators. In addition, the model can shed light on intra-basin opportunities for trade-offs. For example, particular indicators might be more important to some riparian states (nations bordering a river) than others, providing prospects for linking issues when negotiating a water regime. From this, analysts, donor agencies, and governments can glean the severity of the region's security-related problems, the degree of poverty and development potential in the basin, and current and future ecosystem conditions. International agencies and states can likewise use the model to tailor their aid programs in a given basin.

The model deserves some scrutiny. About 40 percent of the authors' indicators and their associated rankings (bands) are qualitatively derived, even though quantitative data is available for a number of these indicators, such as governmental stability and water quality. Since they are based on interpretation, rather than actual measures, these indicators may be problematic or inaccurate. Similarly, the statistical justification and thresholds used to rank both qualitative and quantitative indicators are not clear. The model's design provokes other questions. For example, did the authors use specific time periods when deriving the quantitative and qualitative valuations for each country? Did they then calculate averages? How were the qualitative indicators developed and subsequently divided into bands?

Benefit-sharing epitomizes the interdependencies that characterize river basins. Cooperation can be sustained if all parties have incentives.

The Case Studies

In their discussion of the Jordan River basin, the authors correctly assert that the broader political conflict has retarded greater regional cooperation on water. However, they overlook Israel's recognition of Palestinian water rights and the principle of equitable allocation in the 1995 Taba Agreement (likewise, the Palestinians recognized Israel's water rights in 1995). In addition, both parties agreed that final water allocations would be part of a comprehensive settlement.

Israel's current desalination projects are directly related to its negotiating stance. Israel has long realized that to reach an equitable and reasonable solution to the water dispute with the Palestinians, it would have to transfer additional water supplies to the Palestinians from the Mountain Aquifer and Jordan River. Israel sees desalinated water as a way to compensate its water supply. The Palestinian negotiating position has likewise evolved. The Palestinians realize that desalination will be necessary to augment any of their future water needs. While the 2000 Camp David talks did not reach a final agreement, the negotiations reveal a framework and specific details for a permanent solution to the water dispute, which will likely be the basis for future negotiations.[2]

The understanding reached in 2000 included benefit-sharing arrangements, such as water importation by Israel and the use of recycled wastewater and water quality protection measures. The parties agreed that the United States and the international community would lead efforts to secure funds to carry out the water augmentation and wastewater projects for the parties' mutual benefit (Dinar, 2003, pp. 212, 224).[3] Other items included a joint mechanism for coordinating cooperation, joint monitoring mechanisms, and water and wastewater infrastructure that crosses through the territory of the other party. In light of these arrangements, the authors' proposal for the allocation of the regional water resources in the basin is especially relevant.

The authors correctly observe that the Kagera River basin has a history of regime creation and institutional development that could form a valuable foundation for future benefit-sharing scenarios, especially in the larger Nile River basin. However, despite efforts by the Nile Basin Initiative, the issue of water allocation and its equitable utilization has hindered productive discussions of benefit-sharing. Nonetheless, there are several opportunities not only to increase the amount of water available in the greater Nile basin—and perhaps pave the way for some sort of a water allocation agreement—but also to create additional benefits for the basin's members. In this case, as in the Jordan River, third parties may need to offer sufficient inducements for the riparian states to consider the advantages of a more equitable water allocation agreement and to help sponsor benefit-sharing projects.

Compared to the other river basins explored by the authors, benefit-sharing schemes in the Mekong basin are well-developed. While they hail the negotiations of the 1995 Mekong River Committee Agreement as an example of successful coordination among the Lower Mekong basin states, the authors caution that this agreement is incomplete without the involvement of upstream China—which is already making demands on the river that may alter original arrangements—and

Burma (Myanmar). The participation of these two countries is crucial for optimizing flow allocations, creating broader benefits such as hydropower, and maintaining the natural flow regime (which may affect fisheries and agriculture downstream). The authors' emphasis on trade-offs and issue-linkages to promote coordination and compromise among upstream and downstream states is, therefore, particularly germane.

As the authors rightly indicate, the concept of benefit-sharing is not novel (p. 139). While scholarship only recently began to investigate issues other than water allocation (such as hydropower generation, flood prevention, pollution control, environmental stewardship, and sustainable development), states have long been cooperating on these issues. The authors correctly call for additional investigation into benefit-sharing, especially as it relates to cooperation over water and broader conflict prevention. Benefit-sharing epitomizes the interdependencies that characterize river basins. Cooperation can be sustained if all parties have incentives. While some factors may make cooperation difficult (e.g., a broader protracted conflict or heavily securitized regional hydropolitics), as the report's examples of actual benefit-sharing agreements indicate, the concept creates a good focal point for facilitating negotiations (p. 138).

The authors' Inter-SEDE model clearly demonstrates that each river basin has distinct characteristics and that benefit-sharing plans should take these differences into account. While it is true that each river basin is unique, we can garner general lessons from panaceas already in place and apply them to other basins. In general, resolutions to particular disputes have been codified in the form of international freshwater agreements, many of which confirm benefit-sharing schemes.[4] Specifically, benefit-sharing agreements between upstream and downstream states have often awarded compensation for benefits created downstream due to upstream projects or actions (Dinar, 2006, 2007). Such a solution could be applied in other similar situations.

Any solution to the water dispute that ignores the core issue of water allocation or availability will hinder any viable solution to the water conflict, in particular, and the overall dispute, in general.

The Spillover Effect

The report investigates water cooperation as a tool for broader conflict prevention (the "spillover effect"), claiming that it is a "two-way street" (p. 209). Cooperation in the water arena enhances cooperation in other interstate arenas. If successful, cooperation through benefit-sharing not only creates trust that may be elevated to the broader political arena but, more importantly, can be used as a tool for economic development and subsequent regional integration (as in the Kagera and Mekong basins). Similarly, cooperation in the larger political arena (i.e., "high politics") enhances cooperation in the water arena ("low politics").

On the other hand, the authors' examples seem to confirm Miriam Lowi's (1993) claim that when a water dispute unfolds within a more comprehensive political conflict (e.g., one fought over identity, territory, or religion) the former cannot be effectively isolated from the latter. This dichotomy is especially salient in the Jordan River basin. Despite attempts to increase water availability and de-securitize the relationship among riparians, the water issue is often held hostage to broader, more sensitive issues. As the draft water agreement of the failed Camp David negotiations reveals, the parties were able to agree on several important items and would have most likely continued to negotiate on more touchy issues related to the water dispute. In comparison to the more protracted issues (e.g., Jerusalem,

territory, and refugees), the negotiations pertaining to water were noteworthy but nonetheless hampered by the larger conflict.

In general, where a protracted dispute characterizes a relationship, spillover from the low-politics to the high-politics arena is hindered. However, any solution to the water dispute that ignores the core issue of water allocation or availability will hinder any viable solution to the water conflict, in particular, and the overall dispute, in general. As such, the authors' emphasis on augmenting water availability is significant. International financial institutions and interested governments can play a vital role in helping to finance these water supply projects.

Conclusion

In summary, two points in the report merit mention. First, the authors stress that recent work on benefit-sharing has "axiomatically accepted the concept of equitable use" and "fails to take account of relative power in the international sphere" (p. 53). This observation is important, since a benefit-sharing agreement may embody a cooperative breakthrough between riparian states (implicitly affirming the equitable utilization principle) but at the same time provoke criticism by some members that the basin's dominant state has overwhelmingly benefited. For example, while many of the water agreements between India and Nepal have promoted benefit-sharing, they have been heavily criticized by Nepal for favoring India. That being said, a large number of agreements between asymmetric riparians have provided substantial benefits to the weaker/poorer state (Dinar, 2006, 2007).

Second, the authors admit that while benefit-sharing and equitable allocations of water (which are the main subjects of dispute in two of the three case studies) are not mutually exclusive, the basin members must agree on water allocation to provide an appropriate basis for sharing benefits. However, we must remember that benefit-sharing often requires coordinated action among all the concerned parties. Therefore, riparian states not receiving an equitable share of water from the river will have little desire to engage in benefit-sharing projects that would benefit the basin's most powerful state, which is presumably in the best position to sanction a more equitable water allocation agreement. In essence, if the benefits are relatively lucrative, the powerful state will not be able to attain them without a more equitable water allocation agreement. Hence, the role of international financial organizations and governments as mediators is crucial, and the authors' focus on these intermediaries, and prescription for action, is a welcome contribution.

Notes

1. Available online at http://www.egdi.gov.se/pdf/44699_om_web.pdf

2. The text of the agreement is available in Sher (2001, pp. 433-435) and was translated in Dinar (2003, pp. 224-225).

3. See also Reidel (2002).

4. See, for example, the highly authoritative *Atlas of International Freshwater Agreements*, available online from Oregon State University at http://www.transboundarywaters.orst.edu/publications/atlas/

References

Dinar, Shlomi. (2003). "Environmental preventive diplomacy, international relations, conflict resolution and international water law: Implications for success and failure of the Israeli-Palestinian water conflict." *International Journal of Global Environmental Issues 3*(2), 188-225.

Dinar, Shlomi. (2006). "Assessing side-payment and cost-sharing patterns in international water agreements: The geographic and economic connection." *Political Geography 25* (4), 412-437.

Dinar, Shlomi. (2007). *International water treaties: Negotiation and cooperation along transboundary rivers.* London: Routledge.

Lowi, Miriam. (1993). *Water and power: The politics of a scarce resource in the Jordan River basin.* Cambridge, UK: Cambridge University Press.

Reidel, Bruce. (2002, July 15). "Camp David: Two years later." *bitterlemons.org* (Edition 26). Available online at www.bitterlemons.org/previous/bl150702ed26extra.html

Sher, Gilad. (2001). *Just beyond reach: Israeli-Palestinian negotiations 1999-2001* [Hebrew]. Tel Aviv: Yediot Achronot Books.

The Winds of Change: Climate, Weather, and the Destruction of Civilizations

By Eugene Linden
New York: Simon & Schuster, 2006. 320 pages.

Security and Climate Change: International Relations and the Limits of Realism

By Mark Lacy
London: Routledge, 2005. 164 pages.

Reviewed by JOSHUA BUSBY

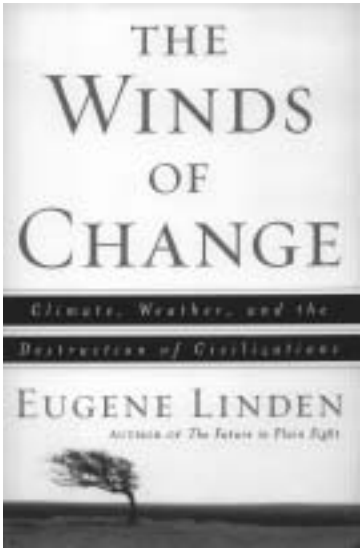
Joshua Busby is a postdoctoral fellow and lecturer at the University of Texas-Austin's LBJ School of Public Affairs. He is currently working on a book manuscript titled *States of Grace: Moral Movements and Foreign Policy.* Busby was previously a postdoctoral research fellow at Princeton's Woodrow Wilson School and at Harvard's Belfer Center for Science and International Affairs. In 2003-2004, he served as a research fellow at the Brookings Institution in the Foreign Policy Studies program.

Eugene Linden's *The Winds of Change* provides a nuanced rendering of the complexities of climate science for non-experts. Linden, an experienced environmental writer who contributed to *Time* for many years, deftly synthesizes and summarizes the findings of the scientific community to build a convincing case that abrupt changes in climate have historically been one of the major causes of the decline of civilizations. In so doing, Linden shows a flair for popular science writing on par with Malcolm Gladwell and the late Stephen Jay Gould.

Readers familiar with Jared Diamond's work may find more than a passing similarity between this book and *Collapse* (2005). Linden's chapters on Greenland and the Mayans pursue similar substantive terrain, though Diamond's culprit is environmental degradation rather than variations in temperature and rainfall. It was thus surprising that Linden barely mentions Diamond's work. Given that both books deal with some of the same subjects, yet derive fairly different interpretations of why, for example, the Norse disappeared from Greenland in the 14th century, Linden could have addressed Diamond's thesis more directly.

Drawing on foundational research from numerous disciplines, Linden's book describes the tortuous process by which new scientific ideas overturn conventional wisdom. He portrays the scientists who recognized that natural variations in weather patterns had caused civilizations to collapse as fighting an uphill battle against an entrenched multidisciplinary antipathy to environmental determinism. It is thus somewhat ironic that Gladwell (2005), in his *New Yorker* review of *Collapse*, writes that "the disappearance of the Norse settlements is usually blamed on the Little Ice Age…what one archeologist called the 'It got too cold, and they died' argument." Linden's thesis, while significantly more nuanced, ultimately attributes the Norse disappearance to the Little Ice Age. Will the true conventional wisdom please stand up?

Given the complexity of weather systems, Linden makes a powerful case that we toy with them at our peril. However, the historical cases he describes turn local populations into largely passive victims of natural phenomena. He wants to demonstrate that these forces can be so large and sudden that they swamp human ability to adapt. At the same time, he wants us to



While we may be capable of unintentionally altering natural climate patterns, Linden's book left me less sanguine about our ability to deal with the climatic changes we have unwittingly brought upon ourselves.

believe we possess sufficient agency to stave off climatic changes wrought by greenhouse gas emissions. While we may be capable of unintentionally altering natural climate patterns, Linden's book left me less sanguine about our ability to deal with the climatic changes we have unwittingly brought upon ourselves—although the history of human ingenuity gives me some cause for optimism.

Linden's book also raises other questions. Suppose climate scientists could say with conviction that the Little Ice Age would return as a result of natural cycles. Would Linden encourage us to inject more greenhouse gases into the atmosphere to stave off this existential threat? Should we care only about warding off human-induced climate change or also natural climate variation?

In the book's later chapters on climate policy and politics, Linden begins to shed the even-handed approach that characterizes the more persuasive earlier arguments. He launches a sweeping broadside against industry and government and suggests that dealing with climate change is not as hard as climate skeptics make it out to be. In one of his less inspired passages, Linden writes:

> While there is resistance to taking action to reduce greenhouse emissions, both industry and government are both more open to programs to either extract carbon from the atmosphere or adapt to climate change once it comes. On the surface, this makes no sense; it is the same as arguing that the best way to deal with someone ingesting arsenic would be to continue to give them arsenic but try to provide them with an antidote as well. From the logic of greed, however, the approach makes perfect sense. (p. 264)

Both carbon capture and adaptation make sense when you look at the projections for energy demand, greenhouse gas emissions, and the growth of renewable energy sources. Given China's construction boom in new coal-fired power plants, carbon capture will be necessary to mitigate climate change. Moreover, with the amount of CO_2 in the atmosphere, some warming is going to happen, and adaptation will be needed to avert human and economic costs. While much of industry probably deserves the caricature Linden draws, I was disappointed that he abandoned the subtlety of his earlier chapters. Fortunately, this is but one chapter of an otherwise very good book.

I had some other minor quibbles. The book labors a bit in the middle where Linden retreads earlier material on Greenland and Syria to discuss the difficulty of finding reliable proxies in mud and ice for tracking historical temperature and precipitation trends. While the charts and graphs that open each chapter are helpful, I wanted more illustrations, particularly in later sections that describe yet another complex clockwork mechanism of underwater currents and wind patterns. I was particularly intrigued by one illustration: Linden's chapter on the "Tide of Public Opinion" opens with a chart tracking the rising scientific certainty about climate change amid more indifferent public opinion from the 1980s to 2005 (p. 219). This chart may have some foundation in reality, but as a social scientist, I worry that he generated it out of thin air. Finally, the chronology that appends the book gives the false impression that all of the major weather events of the past 20 years are linked to the same phenomenon—namely, anthropogenic climate change.

Security and Climate Change

If Linden's book is a well-written, largely thoughtful treatment of the complexities of climate science, Mark Lacy's book *Security and Climate Change* is its antithesis. It poses as postmodern critical theory, attempting to insert the author as a revolutionary in a grand narrative of scholar-activists arrayed against the forces of darkness. In this world, the "Realist" school of international relations theory is the enemy.

Realists (and I am not one) are pessimistic about the possibilities for progress on the world stage. Contemporary realists believe that the absence of an overarching world government creates powerful incentives for states to be

preoccupied with their own security. Lacy sees this narrow-minded view as a major limitation on our ability to imagine a more humane and just world. He not only thinks realists are wrong, but also that they dangerously legitimize the exercise of state power in ways that support war. I find this perspective to be a tired recycling of 1960s radical chic, the text adorned with numerous references to Zygmunt Bauman, Paul Virilio, and other theorists.

Lacy's discussion of climate change is almost an afterthought. At times, the topic is a prop in his larger project to dethrone realism and attack John Mearsheimer, whom Lacy takes to be the apotheosis of realism. Lacy links realists, and Mearsheimer in particular, to "a broader network of free-market think tanks, industry 'front groups' and conservative commentators" (p. 26). He suggests he is not creating a conspiracy theory but showing how these groups are mutually reinforcing. This Chomskyesque oversimplification is the most egregious demonstration of intellectual sloppiness in Lacy's book—and similar to the problem that plagued Mearsheimer himself in a co-authored piece on "The Israel Lobby" (2006).

Lacy suggests that Mearsheimer's brand of realism, which views the Iraq war as contrary to the national interest, is part and parcel of the military-industrial-complex, war-machine mentality that keeps people in a state of fear and issues like climate change off the table. He then concludes that Mearsheimer's opposition to the Iraq War is not a "significant disagreement" with the George W. Bush administration (p. 26). In this, Lacy is utterly wrong and has manufactured a seamless intellectual thread where there is actually discontinuity and difference.

Lacy chastises realists like Mearsheimer for failing to cite important critical theorists in what he calls the "underworld" of international relations. While I agree that realists are close-minded in their conceptions of security, the main reason critical theorists are slighted, in my opinion, is that their work is simply not very good.

Lacy groups all opponents of action of climate change into part of a broader "network of Realism" that doubts climate science (pp. 35, 36). Thus, Mearsheimer gets unceremoniously lumped in with ExxonMobil and other climate naysayers. I am not sure if realists like Mearsheimer or Walt would deny that climate change is real. Knowing a number of them, I suspect that they would not argue with the science; they would argue that it is not an existential threat to great powers (and they may be right) and therefore not a security problem, at least for the great powers. Still, they might agree that it is a very important problem, as Robert Art (2003) does in his book on grand strategy.

To be fair, *Security and Climate Change*—though dressed up in rhetorical hyperbole and critical-theory speak—does make a couple of legitimate points. Lacy identifies (rather inelegantly) a contradiction in realist thought. Realism pretends to be a "descriptive" theory of how the world works but many realists also use it prescriptively to guide policymakers' behavior. Realists have also typically underplayed the importance of new security threats, in part because they are wedded to the notion that security problems come only from external armed attacks by states against other states. The terrorist attacks of 9/11 have already made this thesis more difficult to defend, as have other problems like pandemic flu. However, the task is to identify (1) what security means; and (2) the ways in which these new problems constitute security problems. A book on this topic would be worth reading, but *Security and Climate Change* is not that book.

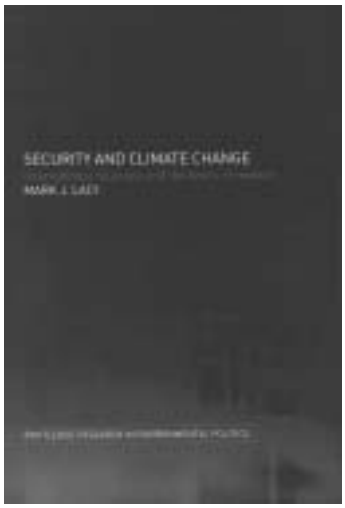
References

Art, Robert J. (2003). *A grand strategy for America.* Ithaca, NY: Cornell University Press.

Diamond, Jared. (2005). *Collapse: How societies choose to fail or succeed.* New York: Viking.

Gladwell, Malcolm. (2005, January 3). "The vanishing" [Book review of *Collapse*]. *The New Yorker.* Available online at http://www.newyorker.com/critics/books/articles/050103crbo_books?050103crbo_books

Mearsheimer, John, & Stephen Walt. (2006, March 23). "The Israel lobby." *London Review of Books 28*(6). Available online at http://www.lrb.co.uk/v28/n06/mear01_.html



Lacy's discussion of climate change is almost an afterthought. At times, the topic is a prop in his larger project to dethrone realism.

dotPOP

Online resources for data on water and sanitation

Compiled by **GIB CLARKE**

Factsheet on Water and Sanitation

United Nations Water for Life Decade 2005 – 2015
http://www.un.org/waterforlifedecade/factsheet.html

A great first stop, the "International Decade for Action: Water for Life" campaign presents key statistics for water supply and sanitation and their connections to global health and gender. Each statistic links to more exhaustive data sheets from the United Nations, World Health Organization (WHO), and UNICEF.

Beyond Scarcity: Power, Poverty and the Global Water Crisis UN Human Development Report 2006

United Nations Development Program
http://hdr.undp.org/hdr2006/pdfs/report/HDR06-complete.pdf

This year's *Human Development Report* is dedicated to water issues including water and sanitation; water scarcity; water competition in agriculture; and managing transboundary water resources. This comprehensive volume includes five chapters narrating the major aspects: the current crisis, human consumption, sanitation, agriculture, and transboundary management. Colorful boxes, tables, and maps, as well as essays from former U.S. President Jimmy Carter, the UK's Gordon Brown, former UN Secretary-General Kofi Annan, and Brazilian President Luiz Inácio da Silva, illustrate water's importance. However, half of the report's 422 pages are dedicated to the year's Human Development Indicators, and among those scores of statistics, only two measure population access to water and sanitation.

Joint Monitoring Programme (JMP) for Water Supply and Sanitation

WHO/UNICEF
http://www.wssinfo.org/

The JMP website provides comprehensive data on water and sanitation at global, regional, and country levels, including statistics for developed, developing, and least-developed countries, updated in August 2006 with the most recent set of comprehensive and validated data (2004). JMP also includes data on common water-related diseases and other health impacts of inadequate water supply and sanitation. The *JMP Report 2006* reports on the progress of individual developing countries and includes key trends and predictions—including population growth—for 2005-2015 to help the international community know where to focus to achieve the Millennium Development Goals (MDGs) on water and sanitation by 2015.

Progress for Children No. 5: A Report Card on Water and Sanitation

UNICEF
http://www.unicef.org/wes/files/Progress_for_Children_No._5_-_English.pdf

This progress report discusses regional successes and failures in efforts to expand access to safe water and basic sanitation, focusing on its impact on children's health. Statistics include nearly every country in the world in both rural and urban areas, and measure the country's progress towards the MDGs. Overall, UNICEF says the world is on track to meet the targets.

Challenges to International Waters: Regional Assessments in a Global Perspective

Global International Waters Assessment (GIWA)
http://www.giwa.net/publications/finalreport/giwa_final_report.pdf

GIWA's report, published by the UN Environment Programme, examines how human activities have weakened aquatic ecosystems and thus compromised human well-being and sustainable development. Tables and charts, both statistical and qualitative, include a unique scoring matrix that quantifies the social, economic, environmental, and health impacts of freshwater shortage, pollution, overfishing, habitat modification, and global change by water "Mega-Region." The report rates each impact from none to severe, and predicts whether they are likely to increase or decrease in the future.

Global Environment Monitoring System (GEMS) Water Programme

United Nations
http://www.gemstat.org/

GEMS provides data on surface and ground water quality for many countries at very local levels (by watershed and from more than 2,700 measuring stations). More than 100 measurements include physical and chemical characteristics, nutrients, organic matter, metals, and major ions present in surface and ground water. Users can display data as maps or graphs; coming soon, GEMS will offer downloads of data tables.

AQUASTAT

UN Food and Agriculture Organization
http://www.fao.org/ag/agl/aglw/aquastat/main/index.stm

AQUASTAT updates its water and agriculture data every few months. The main country database can be queried by countries or regions; year(s); and a wide range of variables including population, climate, water use, and irrigation. There are a few environmental and health variables including "population affected by water-related disease." The site also includes separate databases on African dams, water or agriculture institutions, annual river sediment yields, and investment costs for over 250 irrigation projects.

Visit our website **http://www.wilsoncenter.org/water** for water-related news, events, and publications, and our blog **http://www.newsecuritybeat.blogspot.com** for more population, environment, health, and security links.

About the Center
The Center is the living memorial of the United States of America to the nation's twenty-eighth president, Woodrow Wilson. Congress established the Woodrow Wilson Center in 1968 as an international institute for advanced study, "symbolizing and strengthening the fruitful relationship between the world of learning and the world of public affairs." The Center opened in 1970 under its own board of trustees.

In all its activities the Woodrow Wilson Center is a nonprofit, nonpartisan organization, supported financially by annual appropriations from Congress, and by the contributions of foundations, corporations, and individuals. Conclusions or opinions expressed in Center publications and programs are those of the authors and speakers and do not necessarily reflect the views of the Center staff, fellows, trustees, advisory groups, or any individuals or organizations that provide financial support to the Center.

Cover Photos: Heavily armed MEND (Movement for the Emancipation of Niger Delta) rebels on the creeks of the delta,

This report is made possible by the generous support of the American people through the United States Agency for International Development's (USAID) Office of Population and Reproductive Health. The contents are the responsibility of Woodrow Wilson International Center for Scholars and do not necessarily reflect the views of USAID or the United States Government. Views expressed in this report are not necessarily those of the Center's staff, fellows, trustees, advisory groups, or any individuals or programs that provide assistance to the Center.

Woodrow Wilson International Center for Scholars
1300 Pennsylvania Ave., NW
Washington, DC 20004
Tel. (202) 691-4000
Fax (202) 691-4001
ecsp@wilsoncenter.org
www.wilsoncenter.org/ecsp

ISBN: 978-0-9745919-3-3