AAAS Science and Human Rights Program

Report on SCIENCE & HUMAN RIGHTS

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Science on the Stand: AAAS Statistician Testifies at the Trial of Slobodan Milosevic

By Patrick Ball, Deputy Director AAAS Science & Human Rights Program

On March 13-14, 2002, I presented evidence for the prosecution in the trial of Slobodan Milosevic at the International Tribunal for the Former Yugoslavia (ICTY) in the Hague. The testimony was based on a statistical study I carried out with others concerning patterns of killings and migration in Kosovo during the conflict between Yugoslavia and NATO in March–June 1999. Most of the evidence presented in the trial came from eyewitnesses who described particular criminal acts. In contrast, the statistical evidence focused on a broader set of issues: the statistically permissible inferences concerning the likely cause of the migration and killings that could be drawn from patterns in the data.

The study began in April 1999 when I went to Albania with Fritz Scheuren, an eminent American statistician and current member of the AAAS Committee on Scientific Freedom and Responsibility, to investigate methods to quantify the abuses against ethnic Albanians in Kosovo that were being reported by numerous human rights organizations. While visiting the border between Albania and Kosovo, we discovered that the Albanian guards there were maintaining a registry of all the Kosovar refugees crossing the border at that checkpoint. We used this data, along with information from other sources, to create a statistical model of the number of people leaving each village in Kosovo over time.

Results of this study were published in 1999 as *Policy or Panic? The Flight of Ethnic Albanians from Kosovo, March-May 1999.*

We observed that people fled their villages in three waves. In each wave the number of people leaving their homes rose to a high point, then declined to a relatively much lower point. Subsequently, we undertook a second study, in cooperation with American Bar Association Central and East European Law Initiative. In the second report, we analyzed patterns of killings of Kosovar Albanians during the same period. In this study, we used a statistical technique known as "multiple-systems estimation" to combine data from four different sources to estimate the total number of people killed over time. The pattern of killings turned out to be very similar to the migration patterns. These similarities imply that the violations had the same cause.

There were three armed parties to the

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Talking About Human Rights in Johannesburg

Now that the long-anticipated World Summit on Sustainable Development has ended, a host of participants and observers are busy assessing its outcome and adding up the gains and losses. This task is complicated by the magnitude of the WSSD: tens of thousands of participants from around the world could choose from among hundreds of events, all across the city of Johannesburg, during a period of several weeks. Although the assessment will focus on the governmental negotiations conducted under the auspices of the United Nations, which were the centerpiece of the WSSD, that perspective inevitably misses many smaller events whose outcomes and aftermath may be more hopeful and conceivably lead to longer-lasting change than the official proceedings, whose mixed results disappointed many human rights and environmental advocates.

One such hopeful event was an all-day workshop exploring and promoting the interconnections among human rights, sustainable development and environmental protection, which took place on September 1. The goal of the workshop was primarily educational: to enable the environmental and sustainable development NGOs who made up the bulk of the civil society audience at the WSSD to make better use of human rights law, mechanisms and approaches in their work.

Articulating, developing and communicating the links between human rights and the environment is the goal of the AAAS Science and Human Rights Program's project in human rights and the environment, funded by the Richard and Rhoda Goldman Fund, and AAAS was one of the lead organizers of the workshop.

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Dr. Moncef Marzouki Honored at 2002 AAAS Annual Meeting

The Science and Human Rights Program honored Tunisian physician Moncef Marzouki at its yearly reception, which was held last February in conjunction with the AAAS Annual Meeting in Boston. The reception provides an opportunity to recognize a scientist who, through action and example, has promoted human rights, usually at great personal risk. It has been a tradition at the AAAS Annual Meeting since 1994.

Dr. Marzouki is one of Tunisia's leading human rights activists and the current spokesman for the National Council on Liberties in Tunisia. His human rights activism developed from his work as a physician and professor of public health. In his practice of pediatric neurology, Dr. Marzouki found that Tunisia had few legal rights protecting children with disabilities. He came to believe that being a doctor meant addressing all the needs of his patients, not only physical ailments, but also their social and political needs.

Dr. Marzouki served as the President of the Tunisian League for Human Rights from 1989-1994. As a price of his activism, he endured years of systematic intimidation and harassment at the hands of the Tunisian government. He was followed by the police, his home phone and fax were repeatedly cut, and his mail arrived opened or not at all. In 1994, after declaring himself the opposition candidate to Tunisian president Zine el-Abidine Ben Ali, Dr. Marzouki was imprisoned and held in solitary confinement for four months. That same year, the government also struck a professional blow to Dr. Marzouki and shut down the Center for Community Medicine, a clinic he founded, which provided medical care to residents in the slums of Sousse, a city 100 kilometers south of Tunis.

Moncef Marzouki

In 2000, Dr. Marzouki again faced professional reprisals for his human rights activism. In July the Ministry of Health dismissed Dr. Marzouki from his position as professor of public health at the University of Sousse because of statements he had made during a visit to the United States the month before. The government subsequently charged Dr. Marzouki with "spreading false information intended to disturb the public order" for circulating a paper criticizing Tunisia's human rights practices at a meeting of human rights defenders in Morocco held earlier that year. Dr. Marzouki was convicted in December 2000, following a trial that failed to meet international standards of fairness, and sentenced to one year in prison. In September 2001, international pressure caused the government to suspend the sentence. Unable to earn a living and subject to increased repression at home, Dr. Marzouki made the difficult decision to leave Tunisia, and accepted a position in the Faculty of Medicine of the University of Paris at Bobigny. He arrived in Paris in December 2001.

In his remarks at the Science and Human Rights reception, Dr. Marzouki said that he was thinking about his friends still in Tunisia fighting for human rights. Dr. Marzouki believes that being a human rights activist has become even more difficult in the past year, particularly in the Muslim world, where attitudes toward the West have become more polarized following the events of September 11, 2001, and its aftermath.

Dr. Marzouki also observed that human rights activists all over the world must come to terms with their own internal fears and doubts. That is why international recognition like the Science and Human Rights reception is so important. He concluded by saying, "You make it easy for me to be a human rights activist." ♦

The 10th annual Science and Human Rights reception will take place on Saturday, February 15, 2003, at the AAAS Annual Meeting in Denver, Colorado. It is open to Annual Meeting attendees and the general public. More information about the reception and the honoree will be sent out on the SHR email list. Visit http://shr.aaas.org to sign up for email notices about this event and other SHR news.

Patents, Traditional Knowledge, and the USPTO

These days we often hear how knowledge used for centuries by indigenous communities is being patented by corporations. Pharmaceutical companies are often called "biopirates," accused of stealing indigenous traditional knowledge, and the United States Patent and Trademark Office (USPTO) is often blamed for not taking measures to better protect this knowledge. According to article 15(1)(c) of the International Covenant on Economic, Social, and Cultural Rights, everyone has the right "to benefit from the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he [or she] is the author." This is the most relevant statement in international human rights law regarding the issue of biopiracy, as it affirms the right to intellectual property protection. Although the Covenant has not yet been ratified by the United States, article 15 (1) (c) sets forth the internationally accepted human rights standard. Based on this standard, the moral and material interests resulting from indigenous communities' centuries-old scientific discoveries are entitled to protection. Understanding how the patent system works in the United States helps to identify aspects of the patent regime inhibiting efforts to protect traditional ecological knowledge.

One obstacle in the patent system is the definition of novelty. Novelty is not defined in U.S. patent law according to the common understanding of the word. In U.S. patent law, an invention is novel if it was not used, known, or sold in the United States or previously patented or described in a printed publication in the United States or a foreign territory one year prior to the date of a patent application. All the materials under this definition (references to prior publications, uses, or sales) are referred to as "prior art." Because most traditional knowledge originates outside the United States, it must therefore be described in a printed publication in order to be recognized by the USPTO. However, traditional knowledge is typically documented culturally through practice and oral history and not according to USPTO guidelines.

A textbook example is the *neem* plant. The plant is native to India, where it has been used for centuries by traditional farmers as a pesticide. Traditional knowledge holders in India did not document this use because it was considered common knowledge. Subsequently, various patents have been approved in the United States for the use of the *neem* plant as a pesticide. The patent applications were deemed novel by the USPTO because, despite prior use by Indian farmers, no printed documentation existed. In contrast, the European Patent Office accepts oral descriptions as prior art and rejected the *neem* patent based on oral testimony from Indian farmers. Even when prior art capable of disproving novelty exists in the United States, patents based on traditional knowledge have still been approved. For example, it is widely known and documented that the *maca* plant, native to the Andes, has been used by indigenous communities to increase fertility for livestock reproduction. *Maca* by itself was not patented in the United States to increase fertility, but instead a combination of *maca* and velvet deer antler was patented. The combination of these two plants, despite individually documented traditional uses, was not published in written form; therefore, the USPTO was legally bound to approve the patent.

Another obstacle in the patenting system is the patent approval process at the USPTO. According to the U.S. Constitution, patents stimulate scientific progress, which benefits society by rewarding innovation and discovery. The job of patent examiners is simply to determine whether innovations and discoveries meet the criteria for novelty. If so, they issue the patent. But the patent examiners have a heavy workload. They must examine claims, review supporting data and analysis, and conduct a thorough prior art search of existing relevant documentation within a matter of hours. Patent examiners do not purposely overlook prior art or ignore indigenous traditional knowledge, as commonly alleged by traditional knowledge holders and their advocates. Examiners perform the most thorough search they can, given limited resources and time restrictions. The issue facing the examiners is access to resources that document traditional knowledge in order to establish prior art. If examiners cannot find written documentation in the short amount of time available to review the application, the patent application is approved by default. This guideline for novelty does not address all the realities of prior art, particularly with respect to traditional knowledge. It is important to note that the criteria for issuing patents come from laws passed by the U.S. Congress. They are not in-house USPTO guidelines. To change the patent system, it is necessary to change the law.

In an effort to improve the ability of the current patent system to recognize traditional knowledge as prior art, a project of the Science and Human Rights Program documents traditional knowledge according to USPTO guidelines. The Traditional Ecological Knowledge Prior Art Database, or TEK*PAD, is available online at http://ip.aaas.org/tekpad. While the project addresses one major obstacle to protecting traditional ecological knowledge, several obstacles remain. Inconsistencies between traditional knowledge, the definition of novelty in U.S. patent law, the demands placed on patent examiners, and the lack of legislative interest in changing the law are all issues that should be addressed in order to make the patent system more sensitive to traditional practices, better able to reward true novelty, and more consistent with basic human rights standards. ♦

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The workshop was very much a collective effort. It was sponsored by an ad hoc group of about 20 international human rights and environmental NGOs, most of which had not worked together before. That they were able to work together so effectively was itself one of the successful outcomes of the day and a good sign for the future. They came together out of a common desire to ensure that human rights was on the agenda in Johannesburg, and operated from the belief that there can be no sustainable development without human rights. The workshop focused less on the proceedings at the Summit itself than on preparing the way for life after Johannesburg: creating links and sharing information among human rights and environmental organizations, that will enable them to work together to accomplish their common but differentiated agendas.

The evolving understanding of the links between human rights and the environment was clearly articulated by Mary Robinson, outgoing UN High Commissioner for Human Rights, in her keynote address at the start of the workshop. As she put it:

> What workshops such as this should strive to do is to show each community how it can benefit from interaction with the other. Environmentalists must come to realize that the language and framework of human rights provides another tool in their struggle to protect the environment. At the same time, human rights advocates need to look to the significant role that environmental degradation—in all its forms—has on the enjoyment of individual rights, not alone for those living today but for future generations.

Speaking specifically about the human rights dimension of the debate, the High Commissioner cleared up some common misconceptions by stating that:

> [H]uman rights are not by nature environmentally unfriendly. The right to safe drinking water is not the right to waste drinking water. The right to housing does not support the destruction of forests essential in both ecological and human health terms. The goals of protecting the earth for future generations and of ensuring the dignity of those living at the present time are inextricably intertwined.

Themes sounded in the High Commissioner's keynote address reappeared throughout the day, applied by subsequent speakers to more specific topics at the intersection between human rights and the environment. An expert panel took them up next. Panelists included Miloon Kothari and Fatma Vesely, respectively the UN Special Rapporteurs on the Right to Adequate Housing and on the Illicit Trade in Pesticides and Other Dangerous Products; Samuel Nguiffo, a recipient of the Goldman Environmental Prize, whose efforts on behalf of the tropical rainforests of Cameroon encompass the people who live in them; and Mililani Trask, an attorney, activist, and representative to the UN Permanent Forum on Indigenous Issues from the Pacific region.

The afternoon was taken up by two concurrent sets of five breakout groups, for a total of ten. Making no claim to comprehensiveness, the breakout sessions highlighted a cross-section of current and emerging issues where human rights and the environment intersect. Topics included community-based property rights, corporate accountability, environmental justice, food and agriculture, indigenous peoples and minorities, procedural rights, toxic wastes, trade and investment, water, and women.

Although the subject matter of the sessions ranged from civil and political rights, to particular vulnerable groups, to economic, social and cultural rights, and to traditional environmental topics, by the end of the day, some common themes had emerged. These included: 1) the need for both groups to learn more about and from each other; 2) the importance of access to information, participation and transparency; 3) the range of tools available—beyond simply the traditional legal tools—and the complementarity among them; and 4) the importance of putting local communities first. ♦

New From the Science and Human Rights Program:

- *Core Obligations: Building a Framework for Economic, Social and Cultural Rights,* edited by SHR staff members Audrey Chapman and Sage Russell (Intersentia, Antwerp, 2002). *Core Obligations* provides an in-depth look at the rights in the International Covenant on Economic, Social and Cultural Rights, in chapters contributed by international experts. It brings added conceptual clarity to discussions of ESC rights by describing their content, delineating state obligations, and identifying representative violations—a necessary step along the road to full implementation. *Core Obligations: Building a Framework for Economic, Social and Cultural Rights* is the most recent in a series of resources produced by the AAAS/HURIDOCS (Human Rights Information and Documentations Systems, International) project in monitoring ESC rights. Copies may be ordered from Intersentia at: http://www.intersentia.be.

- Database of Environment and Human Rights Resources. A comprehensive, easy-to-use index of resources on human rights and the environment is now available online from AAAS. The Environment and Human Rights Resources website explores the connections between human rights and a healthy environment by providing easy access to documents, other web sites, and organizations. On the web at: http://shr.aaas.org/hrenv/.

Staff Highlights

Victoria Baxter traveled to Mexico City to attend an international conference, "Truth Commissions: Torture, Reparation and Prevention," sponsored by the Association for the Prevention of Torture. She also spent three weeks in September in Santiago, Chile, conducting interviews and research on civil society efforts to redress past periods of human rights abuses. In addition to her ongoing casework efforts with the AAAS Human Rights Action Network (AAASHRAN), she is coordinating an international conference, "Empirical Research Methodologies of Transitional Justice Mechanisms," to be held in South Africa in November 2002.

The analysis of data from a multi-year project studying the societal response to the South African Truth and Reconciliation Commission (TRC) has been a major focus of **Audrey Chapman's** time during 2002. During the past three years, the Science and Human Rights Program, in collaboration with the Centre for the Study of Violence and Reconciliation and other South African partners, has analyzed the transcripts of the TRC's human rights violations and amnesty hearings, conducted focus groups with former victims, held in-depth interviews with former perpetrators and religious leaders, and reanalyzed relevant public opinion surveys before, during, and after the TRC in order to assess the interrelationships among truth-finding, forgiveness, justice, and reconciliation. Supported by a MacArthur Foundation research and writing grant, she is writing one book and co-editing two additional volumes based on these data.

Chapman has also been part of the staff team developing a major new AAAS initiative dealing with the intellectual property implications for scientific research and access to the benefits of science. She contributed a paper on the human rights implications of intellectual property protection for a special issue of the *Journal of International Economic Law* based on the presentations given at a symposium on health and intellectual property sponsored by the Science and Human Rights Program at the 2002 AAAS Annual Meeting.

Chapman presented a paper on the requirements for developing human rights indicators at a conference held in April in Merida, Mexico, on issues related to monitoring the incidence of torture cosponsored by the Mexican National Human Rights Commission and the Swiss Federal Office of Statistics.

Chapman was one of four AAAS staff members attending the World Summit on Sustainable Development in Johannesburg.

Stephen Hansen participated as an international expert on cultural rights at the UNESCO-sponsored International Roundtable on the Right to Take Part in Cultural Life that took place in Manila, the Philippines this past February. His paper for the Roundtable, "The Cultural Dimensions of Economic, Social and Cultural Rights," will be included in a the collected conference papers, to be published by UNESCO. In March, he was an invited speaker at the Conference on the International Patent System, sponsored by the World Intellectual Property Organization (WIPO) in Geneva, where he discussed the place of traditional knowledge as prior art in the patenting process and related human rights

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conflict in Kosovo—the guerrillas of the Kosovo Liberation Army (KLA), NATO, and the forces of the Yugoslav government—giving rise to three corresponding hypotheses for the origins of the migrations and killings. We obtained data on when and where NATO air strikes occurred and the ICTY gave us a collection of records (mostly from public sources) on the activities of the KLA. By comparing statistically the patterns of the NATO air strikes and KLA interactions with government forces, we showed that neither could have given rise to the killings and migrations.

This implies that Yugoslav government forces were the likely perpetrators, and other evidence exists to support this conclusion. We discovered that the dramatic decline in killings and mass migration at the end of the first wave coincided exactly with the announcement on April 6 of a unilateral cease-fire by the Yugoslav government, in honor of Orthodox Easter (which fell on Sunday, April 11, that year). Migration and killings immediately declined to their lowest levels in more than a month. During the same period NATO and KLA activities increased dramatically.

Milosevic is acting as his own attorney at the trial, and during cross-examination we came face-to-face to debate the evidence. Most of Milosevic's questions were political, not statistical, and because they did not directly concern my testimony, the panel of three judges instructed me not to answer them. We will not know until the judges render their decision, at the end of a long trial that in subsequent phases will take up the conflicts in Croatia and Bosnia, the weight they assigned to the statistical evidence. However, the judges' insightful questions regarding interpretation of the statistical evidence, suggest that they appreciate its value.

Our report is now "Exhibit 67" in the trial. We hope that the statistical analysis of patterns of migration and killings, combined with the testimony of eyewitnesses, will help the judges to establish responsibility for these gross human rights violations in Kosovo during the spring of 1999, thereby helping to bring justice to the region. ♦

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issues concerning intellectual property. In June, he participated in a panel discussion entitled, "Current Status of the Protection of Economic, Social and Cultural Rights," at American University Washington College of Law.

Along with staff member Justin VanFleet, he gave a presentation on documenting traditional knowledge as prior art, where they demonstrated the Program's Traditional Ecological Knowledge Prior Art Database (TEK*PAD) for conducting prior art searches on patent applications based on traditional knowledge.

Recent publications include "The Right to Take Part in Cultural Life" in the Program's new publication *Core Obligations: Building a Framework for Economic, Social and Cultural Rights,* as well as a book review in the latest issue of *Human Rights Quarterly.*

Sage Russell edited the recently published *Core Obligations: Building a Framework for Economic, Social and Cultural Rights.* She co-organized the NGO workshop on Human Rights, Sustainable Development and Environmental Protection at the World Summit on Sustainable Development, described elsewhere in this *Report*.

Justin VanFleet recently joined the Science and Human Rights Program as a Program Assistant. During the summer of 2001, Justin was an intern with the Program. He recently completed a B.A. in International Studies with a focus on politics and Spanish from Frostburg State University in Maryland. VanFleet has been working on the traditional ecological knowledge project and the Traditional Ecological Knowledge Prior Art Database. He is currently writing a manual on intellectual property rights and existing options for traditional knowledge holders and indigenous communities. ♦

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The AAAS Science and Human Rights Program collects and disseminates information about scientists, engineers, and health professionals who are victims of human rights abuses or whose academic freedom is infringed. It also develops applications of scientific methods and techniques for the documentation and prevention of human rights abuses. The concerns of the Science and Human Rights Program are universal and independent of the ideology of any government or individuals it attempts to aid.

The Science and Human Rights Program is part of the AAAS Directorate for Science and Policy Programs. The Directorate and its Committee on Scientific Freedom and Responsibility monitor actions of the governments of the United States and other nations which may circumscribe the freedom of scientists or restrict their ability to exercise their professional responsibilities, and report on developments affecting scientific freedom and responsibility. ♦

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