

Report on SCIENCE & HUMAN RIGHTS

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Environmental Health, Chemistry, and Middle East Peace

Lauren Chow, Intern, Science and Human Rights Program

Each year, the AAAS Science and Human Rights Program holds a public lecture and reception to honor a U.S.-based scientist for his or her work in furthering human rights in the scientific community. Held in coordination with International Human Rights Day, the event recognizes individuals whose contributions embody the aim of the program itself. The 2005 recipient of this honor is Dr. Zafra M. Lerman, a tireless human rights advocate and pioneer in her efforts to resolve critical issues in the Middle East.

Dr. Lerman believes that scientists, not lawmakers, are best qualified to engage in scientific policy debates to progress toward peace. She organized two conferences of high-profile scientists from several countries in the Middle East, hoping to initiate transboundary dialogues on pressing regional issues. These meetings were unprecedented in their creation of permanent communication pathways between scientists, regardless of political or cultural differences. In tribute to Dr. Lerman's groundbreaking work, a panel of eminent U.S. chemists met December 2 at AAAS headquarters in Washington, D.C. to discuss scientific education and collaboration in the Middle East.

A distinguished professor of science and public policy at Columbia College, Chicago, Dr. Lerman both founded and heads the college's Institute for Science Education and Science Communication. She also serves as chair of the American Chemical Society's Subcommittee on Scientific Freedom and Human Rights, which helped to organize the conferences. Dr. Lerman's unrelenting human rights activ-

ism led to her description as a "one person urgent-action-alert" by Science and Human Rights Program Director Audrey Chapman, continuing, "There are very few persecuted scientists who have not benefited from [Dr. Lerman's] actions."

Opening the lecture, Dr. Lerman provided details of the goals and compo-



Dr. Zafra Lerman

sition of the two conferences, held on Malta. The first, held in December 2003, drew fifty-eight participants, with scientists from Egypt, Iran, Israel, Jordan, Kuwait, Lebanon, the Palestinian Authority, Saudi Arabia, Turkey and the United Arab Emirates. Participants met in focus groups led by six Nobel laureates to address environmental, economic, health and educational problems. The second conference, held in November 2005 with eighty-five participants, welcomed new representatives from Bahrain, Iraq and Qatar.

Dr. Lerman highlighted the need participants of both conferences expressed for further workshops. Discussing her goals for the third conference, she intends to increase the number of participating countries, possibly including northern Africa. She also hopes for higher turnout from women, young scientists and members of each country's respective National Academy of Sciences. Restating her strong belief in scientific collaboration's ability to effect peace, Dr. Lerman quoted Yuan T. Lee: "Borders are only lines on a map, nature doesn't know borders." Lee, sci-

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New Horizons for Science and Intellectual Property in the Public Interest

Michael Kisielewski, Project Associate, Science and Human Rights Program

SIPPI has helped to produce "the first substantial study of the quickly evolving landscape of open-access publishing."

- From the AAAS Science Blog

The past year has been exciting and productive for the project on Science and Intellectual Property in the Public Interest (SIPPI). SIPPI's activities in the areas of open access publishing, the effects of patenting on scientific research, and its work on the issue of humanitarian access to pharmaceutical and agricultural innovation culminated in the release of two reports and the publication of an article in an online journal.

In October 2005, SIPPI cosponsored a project that resulted in a report on the financial and non-financial effects of open access journals on traditional scholarly journals. Not long thereafter, SIPPI published a report based on a pilot survey of over 1,000 AAAS members, to address the effects of patenting on scientific research. Both reports received attention from the media, including an article published in *The Chronicle of Higher Education* on the latter report.

Finally, in November 2005, SIPPI staff published an article in the online journal *Innovation Strategy Today*. The article, "Facilitating humanitarian access to pharmaceutical and agricultural innovation," examines intellectual property approaches that can assist low-income countries and disadvantaged groups in accessing health and agricultural innovations.

The upcoming year promises to be equally productive and successful for SIPPI. A major international survey of scientists will be conducted as a follow-up to SIPPI's pilot survey report, resulting in several new reports and a series of international symposia to discuss their findings. SIPPI also will continue to explore the most pressing issues on the subject of intellectual property in science, including open access journals and archiving, patent reform legislation and the protection of traditional knowledge in scientific innovation. ♦

The Association of Learned and Professional Society Publishers

research report

The facts about Open Access

A study of the financial and non-financial effects of alternative business models for scholarly journals

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The Association of American Medical Colleges

Psychology and Human Rights: The Ignacio Martin-Baro Fund in review

Lauren Chow, Intern, Science and Human Rights Program

The Ignacio Martin-Baro Fund for Mental Health & Human Rights, a group promoting progressive community-based activism in the fields of human rights and mental health, is working to increase awareness of allegations of mental health personnel impropriety during interrogations of detainees in U.S. military detention centers. The Fund is currently organizing petition drives to both the U.S. Congress and the American Psychological Association (APA) to address issues of complicity by mental health professionals and to outline needed policy changes.

The International Committee for the Red Cross has documented several violations of medical ethics, including the release of detainees' medical records to interrogation teams. Using these records, "behavioral science consultation teams" made up of military physicians and psychiatrists designed individualized

interrogation plans, including sleep deprivation and dietary and environmental manipulation. Numerous independent detainee testimonies and accounts provided by human rights organizations such as Amnesty International contain similar accounts.

Various codes of medical ethics prohibit the complicity of medical personnel in torture, from the Hippocratic Oath to the United Nations Principles of Medical Ethics. The latter affirms it is a "gross contravention of medical ethics" for health personnel to engage actively or passively in acts constituting torture. While the Department of Defense does establish a clear policy of noninvolvement for medical personnel bound by doctor-patient ethics, the policy creates a loophole allowing scientific and medical

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Emerging Issue: Iraqi scientists under attack

Sarah Olmstead, Project Coordinator, Science and Human Rights Program

"Assassins are targeting Iraqi university professors in a coordinated, liquidation process to force well-known scholars to leave the country and thus hinder the country's reconstruction."

- Issam al-Rawi, geologist at Baghdad University and head of the Association of University Lecturers.

"I received a threatening letter saying, 'Do not nominate yourself to the dean's post, or it will cost you your life.'"

- Iyad al-Ani, assistant dean of Al-Nahrain University in Baghdad

"We feel there's a campaign to kill every scientist in Iraq."

- Nahi Yousif Yaseen, director general of the Iraqi Center for Cancer and Medical Genetics Research in Baghdad

Since the March 2003 invasion of Iraq by U.S. forces and the subsequent violence waged by insurgent groups, it is estimated that at least 100,000 Iraqi civilians have been killed (as of October 2004, according to a study in British medical journal *The Lancet*), mostly by aerial bombardment. Many of those killed include scientists, medical professionals, and other academics who have been sought out due to their status or position as scientists for intimidation and assassination.

Since the fall of Saddam Hussein's regime in Iraq, academics working at universities and hospitals have been specifically singled out for attack. Dr. Issam al-Rawi, geography professor, member of the Association of Muslim Scholars and chair of the Iraqi Association of University Lecturers, has reported that over 250 academics and professors have been assassinated, and many others have disappeared. The list of those killed includes Arabs, Kurds, Sunni Muslims, Shiite Muslims, Christians: scientists and academics from all backgrounds. In response to these killings and general unrest, it is estimated that an additional 1,000 scientists have fled the country.

Estimates for these numbers are coming from individual reports by colleagues of the dead/disappeared. A partial list of assassinated academics has been collected and posted at the Web site of the BRussels Tribunal by a Baghdad University professor, who wishes to remain anonymous for security reasons. To date, there has been no scientific study of patterns of threats or attempt to collect data on the deaths in a methodical way.

It is unclear who is doing the killing.

Some scientists believe that the majority of the killing is being carried out by the Badr Brigade, the military wing of an Iraqi Shia rebel group that has been in exile in Iran. It is affiliated with a group known as the Supreme Council for the Islamic Revolution in Iraq which worked first to overthrow Saddam Hussein, and is now focused on pushing for the full withdrawal of U.S. forces from Iraq.

Level of Violence

Some professors have received letters claiming to be from students, threatening death should the student not receive a certain grade. Others claim the professor favors a particular ethnic group - Sunni or Shia. Still other academics have received anonymous messages accusing them of working with U.S. government forces and demanding they leave the country. Mohammed Abdulaziz, an English literature student and son of Saadoun Abdulaziz, an assistant dean of Al-Nahrain's science faculty, was kidnapped while Saadoun was at a conference in England. He was released after his parents paid a ransom, but was given a message to relay to his father: "You must leave Iraq. You don't belong here. This country belongs to us."

In general, morale is low in the Iraqi scientific community. Although there has been some rebuilding, many labs have not yet recovered from the looting that went on after the fall of Saddam. Many scientists are fleeing not just because of the danger, but because they have no equipment or resources, and thus nothing to do. They see more opportunities in other

countries. For example, Syria, last year, opened a new science and technology university last year and the teaching staff is now made up of almost 70% Iraqi exiles.

The dismal state of laboratory science compounded with the danger faced by scientists and academics in the country have additionally worried funders. At a September 2005 meeting on science in Iraq, held in Jordan, conference co-chair Arian Pregoner, a senior scientist at Sandia National Laboratories in Albuquerque, New Mexico said "I sometimes question the ethics of what we're doing." Any grants for work in Iraq "are keeping scientists in a war zone," she says. "It's a terrible dilemma."

Actions to Take

Scientists and members of the public are encouraged to write letters to the U.S. State Department and the Iraqi government. Letters should request that government and security forces make protecting scientists, engineers, and health professionals a priority. They should also request domestic security forces, as the presence of American troops might lead people to the idea that the scientists are colluding with American forces, thus putting them in even more danger. Letters should also reinforce the important contributions scientists, and educators broadly, make to the rebuilding of Iraq, both economically and structurally. ♦

More information and other resources on this ever evolving issue, see
http://shr.aas.org/emerging_issues/

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ence advisor to the president of Taiwan, is one of the Nobel laureates who attended the conferences. The ensuing panel discussion, reiterated the insignificance of geographical borders.

Ahmed Mohamed, a Welch visiting professor of chemistry at Texas A&M University and faculty member at Zagazig University, Egypt, discussed the changing role and perception of science in the region, citing output levels of several countries in various fields of research. Stressing the need for increased scientific discourse in the Middle East, Dr. Mohamed discussed the threat of avian flu in the context of the Hajj pilgrimage in Saudi Arabia. With an estimated two million, many from Asian countries, making the pilgrimage in January 2006, the looming threat of a pandemic demands urgent regional attention.

Charles Kolb, President and CEO

of Aerodyne Research, Inc., discussed several of the environmental and health problems in the Middle East. Explaining how domestic pollution problems quickly become transboundary, Dr. Kolb stated the need for reliable data on air and water quality. Dr. Kolb also called for the formation of an international umbrella organization to enable communication and regional collaboration. Without mechanisms to define, motivate and propose collaborative work, Dr. Kolb concluded that general transboundary air quality problems would continue to degrade.

Arthur B. Ellis, Director of the Division of Chemistry at the National Science Foundation, spoke of the foundation's role in promoting disruptive breakthroughs that change the scientific landscape. Dr. Ellis explained how advancements such as the NSF TeraGrid project, NSF Middleware

Initiative, data mining and remotely run instruments revolutionize the ways scientists interact by further breaking down physical borders.

E. Ann Nalley, President-Elect of the American Chemical Society, closed the panel, discussing her experiences at both conferences. Dr. Nalley emphasized the conferences' importance in fostering a sense of camaraderie and confidence in participants. Recounting the profound difference newfound access to equipment and academic exchange made for researchers previously working in isolation, Dr. Nalley shares with many the belief that "what Zafra did will change the atmosphere in the Middle East." ♦

For more information about the Malta Conferences, see <http://pubs.acs.org/cen/science/83/8351sci2.html>

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personnel uninvolved in detainee care to consult in the interrogation process. Dr. David Tornberg, Deputy Assistant Secretary of Defense for Health Affairs, argued the *New England Journal of Medicine* last January that, except for life-threatening circumstances, physicians outside the doctor-patient relationship had no obligation to offer medical aid to detainees. As a result, Tornberg asserted, mental health personnel could consult with military interrogators regarding all aspects of the interrogation process - advising on techniques and overseeing their practice - without violating ethical regulations.

The Martin-Baro Fund's petition stresses that asking mental health professional to engage in what constitutes cruel, inhuman or degrading treatment of detainees, is a violation of both the Geneva Conventions and the UN Convention Against Torture, which the U.S. ratified in 1994. The United States government has claimed that Geneva Convention rules do not apply to detainees in United States military facilities as they are not considered prisoners of war, but are stateless "enemy combatants" and terrorists. The petition endorses the adoption of both conventions as "a

framework within which detainees in U.S. custody are held and interrogated."

The petition demands that all government agencies, including military branches and outside contractors working for the

the commission of an independent non-partisan investigation into allegations of the complicity of mental health professionals in torture of detainees.

Citing the concerns of groups such as

Psychologists for Social Responsibility (PSR) and the APA's own Divisions for Social Justice, this petition reiterates the need for more protective policies for mental health professionals to eliminate ethical conflicts with governing legal authorities.

Last October, PSR called for an independent, non-partisan investigation of the allegations of medical professionals' complicity in torture in a letter to the APA President, Gerald P. Koocher, stating, "[i]n the absence of an independent investigation, there will remain an atmosphere of impunity that signals a lack of resolve to take our ethics code seriously." The letter also implored the APA to openly condemn the abuses in Guantanamo Bay, Iraq and Afghanistan and to educate policymakers regarding the lasting psychological damage inflicted by such methods, including post-traumatic stress disorder, depression and anxiety.

A June 2005 report issued by the APA Presidential Task Force on Psychological Ethics and National Security

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THE IGNACIO MARTÍN-BARÓ FUND FOR MENTAL HEALTH & HUMAN RIGHTS



government, no longer ask for or allow the participation of medical and mental health professionals in interrogation of political detainees. The petition calls for the passage of the McCain Amendment, which explicitly prohibits cruel, inhuman, and degrading treatment of persons in the detention of the U.S. government. In recent days, the McCain amendment was indeed passed, although President Bush issued a signing statement clarifying his reading of the prohibition on torture.

In a separate petition directed to the APA, the Martin-Baro Fund asks that the association adopt international human rights standards into its Ethics Code. The petition also demands the APA's immediate condemnation of the "ethically and morally repugnant" treatment of detainees in U.S. military compounds, calling for

New Project Will Explore Geospatial Technologies for Human Rights

Edward Lempinen, AAAS Office of Public Programs

A new year-long AAAS project will explore how satellite imagery and other cutting-edge geospatial technologies can be used to assess human rights potential human rights violations and prevent new ones before they develop.

Funded by a grant from the John D. and Catherine T. MacArthur Foundation, the AAAS Science and Human Rights program will conduct a broad study on whether and how the technology can be used effectively, and efficiently for human rights applications. If the assessment determines that the technologies have broad utility for human rights, the program will seek to establish an ongoing project.

AAAS staffers will evaluate the range of potential geospatial technology available for human rights applications; conduct several case studies, applying the data to a past or ongoing human rights crisis; and assess technical and dissemination issues regarding provision of geospatial services to the world's human rights groups. The case studies will be undertaken in collaboration with Amnesty International, the United Nations Advisor on the Prevention of Genocide and the Holocaust Memorial Museum.

"Geospatial technologies potentially offer human rights researchers and advocates a significant new tool for assessing human rights violations and monitoring developing crises in geographic areas where it is difficult to send observers," said Audrey Chapman, director of the AAAS Science and Human Rights program. "These tools may also provide compelling documenta-

tion to encourage intervention and to determine responsibility. The initial phase of this project will enable AAAS to evaluate the potential uses and to determine the most feasible way to develop and disseminate these technologies within the human rights community."

In a variety of initiatives, Science and Human Rights seeks to develop and promote the use of scientific methods to advance human rights. It has pioneered the application of forensic sciences, statistical approaches, information management technologies, a range of social science methods and the use of various indicators, and it has helped build an international network of science and human rights organizations.

The idea for the geospatial technology project developed from a series of discussions between Chapman and Lars Bromley, senior program associate in the AAAS Office of International Initiatives. Bromley has a background in geospatial technology and was the principal researcher for the *AAAS Atlas of Population & Environment*, published in 2000. MacArthur awarded a \$110,000 grant in December, and work on the new project got underway this month.

On 23 January, AAAS hosted the first meeting of experts who are interested in the project, including representatives from the National Resources Defense Council, Amnesty International USA, the U.S. State Department and ESRI, the world leader in GIS (geographic information system) software and technology. The U.N. Special Advisor for the Prevention of Genocide also is a partner in the project.

Geospatial technology is not new — the development of hot air balloons and the first airplanes brought the use of aerial cameras, intelligence agencies have long used spy satellites, and scientists likewise make active use of the technologies. But the latest satellites and the increasing power of personal computers and the Internet have made the data available and helpful in a range of other uses, from fighting fires to planning famine relief operations. And in the coming decade, more satellites will be gathering higher-quality resolution images and other data, making the information even more accessible and less expensive.

Today, a few commercial satellites in orbit above Earth can capture images detailed down to a meter, even approaching a half-meter. Still, such technology has limitations, says Chuck Herring, director of corporate communication for DigitalGlobe, a Colorado-based satellite image company that is providing service to the AAAS project.

"It's not a real great surveillance satellite, unless you get lucky," Herring said. "My analogy is that you're looking at the world through a straw. We fly over an area every three to five days. The upside is that compared to aerial platforms — airplane-based technology — it can be more effective. A lot of people will notice planes flying over and will react to that. Satellites are much less invasive, less intrusive. People on the ground have less of a chance to do denial or deception, to cover things up."

Satellites can be especially effective in doing post-event assessment, or other anal-

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reaffirmed the organization's opposition to torture and commitment to the APA Ethics Code. While stating it is consistent within the APA Ethics Code for psychologists to consult in interrogations and information-gathering processes, the report also stressed that "psychologists have an ethical responsibility to be alert to and report any such acts [of torture] to appropriate authorities." Following the recommendations of the report, last summer the APA reaffirmed both the 1986 Council resolution supporting the U.N. Declaration and Convention Against Torture and Other Cruel, Inhuman,

or Degrading Treatment or Punishment and the U.N. Principles of Medical Ethics.

Rhea Farberman, Director of Communications for the APA, emphasized that psychologists, regardless of situation, are always bound by the APA Ethics Code, citing the recent reaffirmation of the organization's "clear and unequivocal" stance against torture. Because the APA is not an investigative body, Farberman stated that it is not within the organization's mandate to investigate specific claims of torture or the involvement of mental health professionals. However, she stressed, the organi-

zation does serve an adjudicatory role with an established process by which actions will be taken should evidence of wrongdoing be brought to the Ethics Committee's attention. The organization is also very interested in studying applications of the APA Ethics Code to the national security arena. ♦

To learn more about the petition drive of the Ignacio Martin-Baro Fund for Mental Health & Human Rights, visit their Web site at: www.martinbarofund.org/index.html

ysis that does not require real-time data. For example, Herring said, the U.S. Committee for Human Rights in North Korea obtained data on the country's secret prison camp locations from ex-prisoners; using that data and images from DigitalGlobe's cutting-edge QuickBird satellite, the group was able to pinpoint the locations of the camps.

"Using satellite images, they were able to prove to the world those camps exist," Herring said. "That was the first time anyone had ever seen those camps."

While QuickBird's 2-foot resolution is not fine enough to see individual humans going about their business, Bromley said, it does allow a sharp-focus view of buildings, building-destruction, fires, environmental sabotage and soil disruptions that might mark mass graves. And imagery from lower-resolution sensors can show signs of drought or other disruptions that can be among the precursors of broad human-rights violations.

In an emerging crisis, "we're going to be looking for signs of violence—destroyed structures, burned fields and destroyed infrastructure, things like that," Bromley explained. "Or, looking at Darfur right now, it might be interesting to look at stolen vehicles and stolen cattle. Are there certain villages that had a normal-sized herd of cattle before the violence and then afterward they have a 10-fold increase in the number of cattle? That's the sort of material that we're hoping to be able to spot."

The use of images from DigitalGlobe's QuickBird satellite was crucial in helping U.S. officials to prove the extent of ethnic cleansing in Darfur.

Over the course of a year, the MacArthur-funded AAAS proj-

ect will explore how human rights groups can most effectively use geospatial technologies. In the first phase, project staff will gather information on how geospatial technology is currently being used, including by human rights groups; that will entail assessing information from a variety of government and non-governmental sources and exploring various methodologies for assessing human rights violations.

Later, the project will explore what geospatial tools being used in other fields can be applied to human rights work. It will also explore the issue of costs and how the information can most economically be gathered and used by human rights groups which usually operate on tight budgets. (Currently, the cost of one new high-resolution image approaches \$2,000, and more than one image would be needed to assess an unfolding crisis. Archived satellite photos are considerably less expensive.) The project also will undertake several case studies. And staffers will develop an online manual on the use of geospatial technologies in human rights work.

Throughout the project, Bromley said, staffers will have an eye to the rapid evolution of technology. More high-resolution satellites will be put in orbit above the earth within a few years, he said, and that will likely mean more data, including more real-time data, and falling costs. In addition, technologies such as unmanned drones and mathematical modeling of potential crisis zones may prove useful. ♦

For more information about the project, visit <http://shr.aaas.org/geotech/>

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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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