

The Role of Science Cooperation in Addressing the Israeli-Palestinian Conflict

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A decade ago, Alexander Keynan, a Hebrew University of Jerusalem scientist, shrewdly argued that science can play a key role in conflict mitigation because: (1) “scientists can utilize their networks to communicate quite readily with other scientists across national borders;” (2) “scientists can provide new ideas and conceptual frameworks;” (3) “scientists can exemplify cooperation to policymakers in situations where the latter have been unsuccessful;” (4) “scientists can aid in maintaining peace;” and (5) “scientists can help governments by providing the vehicle for cooperative efforts aimed at easing tensions.”¹ For example, during the Cold War, American and Soviet scientists met regularly to discuss their disciplines and those involved felt that it was a worthwhile and humanizing experience.² More so, before and after U.S. President Richard Nixon’s monumental trip to China in 1972, scientific exchanges occurred between the two countries that helped to normalize relations.³ Today, similar efforts are ongoing between Indians and Pakistanis, North and South Koreans, and even Americans and Iranians.⁴ A Washington, DC-based non-governmental organization has also just initiated an effort to engage Cuba through science. Such “science diplomacy” currently exists between Israelis and Palestinians, but is grossly underutilized. An increased wave of Israeli-Palestinian scientific cooperation could help transform the conflict, the Middle East, and U.S. foreign policy.

Background of the Conflict

Following the Second World War, in 1947, the United Nations General Assembly recommended the partition of Palestine – which had been under British control since the fall of the Ottoman Empire – into a Jewish State (Israel) and an Arab one. This partition plan assigned Israel a majority of the territory; Arab opposition led to the 1948 Arab-Israeli War. Following a

¹ Alexander Keynan, *Scientific Cooperation, State Conflict: The Roles of Scientists in Mitigating International Discord*, Annals of the New York Academy of Sciences, 30 December 1998.

² David M. Abshire (President, Center for the Study of the Presidency), personal interview, 30 April 2008.

³ Kristin M. Lord and Vaughan C. Turekian, “Time for a New Era of Science Diplomacy,” *Science*, 9 February 2007.

⁴ Norman P. Neureiter and Glenn Schweitzer, “Engaging Iran,” *Science*, 18 January 2008; Edward W. Lempinen, “A Pioneer in Modern Science Diplomacy Forges Hopeful Bonds with Iran,” *American Association for the Advancement of Science*, 7 January 2008.

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year of fighting, Israel had conquered additional territory, yet Egypt gained control of the Gaza Strip and Jordan occupied the West Bank, including the Old City of Jerusalem and its holy sites important to the Islamic, Jewish, and Christian faiths. These borders held until the 1967 (Six-Day) War, in which Israel summarily defeated Syria, Jordan, and Egypt, gaining the Golan Heights, the West Bank and East Jerusalem (including the Old City), and the Sinai Peninsula from the Syrians, Jordanians, and Egyptians respectively. The 1973 (Yom Kippur) War broke out six years later due to a surprise attack by Egypt and Syria, but the borders remained basically unchanged. In 1979, an Israeli-Egyptian peace deal, largely brokered by U.S. President Jimmy Carter at Camp David, returned the Sinai Peninsula to Egypt. Over the next three decades, two wars were fought in Lebanon, two Palestinian Intifadas occurred, and multiple peace accords were attempted, most notably at Oslo. However, the Israelis and Palestinians have remained at odds over Israeli settlements on the West Bank, control of Jerusalem, the status of Palestinian refugees, and security.⁵

The United States with its “Quartet” partners, the United Nations, the European Union, and Russia, is currently pushing for a new framework for peace, which U.S. President George W. Bush hopes to finalize by the time he leaves office in January 2009. However, short-run prospects for peace are less than bright considering the current situation in Iraq – which hurts America’s credibility in the Middle East as a broker – and the division within the Palestinian bloc between Fatah and Hamas, which separately control the West Bank and the Gaza Strip.⁶

Israeli-Palestinian Science Engagement

Since Israel’s occupation of the Palestinian territories in 1967, Israeli-Palestinian scientific (and academic) cooperation has been scattershot at best and has been driven almost entirely by individuals with the support of a few academic institutions. Before the Oslo Peace Accords of 1993, cooperation was especially rare – with a few notable exceptions, such as workshops organized by Hebrew University’s Truman Institute with Palestinian non-governmental organizations and the 1992 Israeli-Palestinian International Academic Conference on Water.⁷ Ties between Israeli and Palestinian physicians were strong, as Palestinian doctors had long referred their patients to Israeli hospitals, such as the Hadassah University Hospital in Jerusalem, and select Palestinian physicians and nurses had trained in Israel.⁸

⁵ Dany Shoham, “The Influence of Palestinian-Israeli Academic Encounters on the Peace Process,” *Scientific Cooperation, State Conflict: The Roles of Scientists in Mitigating International Discord*, Annals of the New York Academy of Sciences, 30 December 1998; “The Wandering Palestinian,” *The Economist*, 10 May 2008.

⁶ “Get a Move On, Then” and “The Remarkable Survival of Ehud Olmert,” *The Economist*, 20 September 2007.

⁷ Shoham.

⁸ David Zangen (Pediatrics Department, Hadassah University Hospital), personal interview, 13 January 2008.

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In 1992, Israeli and Palestinian academics had actually initiated a dialogue that led to diplomatic progress and thus more opportunities for scientific cooperation. Namely, the head of the Norwegian Institute for Applied Social Sciences (FAFO) traveled to Israel to investigate the living conditions of Palestinians. The trip had been suggested by the brother of Yasser Arafat, Chairman of the Palestine Liberation Organization (PLO), and was followed by meetings in Norway between Israeli and Palestinian academics. The initial academic talks provided cover and a framework for sensitive political discussions, as eventually diplomats from both sides joined the sessions. The now famous Oslo Peace Accords in part called for governmental and people-to-people cooperation in a number of areas, notably water, agriculture, health, and energy.⁹ In the aftermath of Oslo, foreign investment for joint Israeli-Palestinian projects increased. For example, the U.S. Agency for International Development's (USAID) Middle East Regional Cooperation Program (MERC), which was originally established by the U.S. Congress after the 1979 U.S.-Egypt Camp David Accords to fund joint Israeli-Egyptian research, was broadened to support Israeli-Palestinian efforts. European countries increased their support for joint research projects as well, through instruments such as the German Research Foundation (DFG), the German Federal Ministry of Education and Research (BMBF), and the Belgian Development Cooperation (DGDC).¹⁰ However, following the outbreak of the Second Intifada in 2000, the Palestinian Ministry of Higher Education announced its opposition to formal partnerships between Israeli and Palestinian universities, which have made true institutional bonds more difficult and have eliminated many of these post-Oslo efforts.¹¹

Today, important examples of Israeli-Palestinian scientific cooperation exist but are too few. Most notably, the Israeli-Palestinian Science Organization (IPSO) was established in 2003 "to foster and sustain cooperation between Israelis and Palestinians and to promote dialogue and interaction among scholars and scientists in the two communities." IPSO was founded by the current Presidents of the Israeli Academy of Sciences and Humanities and Al-Quds University (a Palestinian institution on the West Bank) with the endorsement and support of the U.S. National Academies, 26 additional national academies of science, private foundations, European Union countries, and the United Nations Educational, Scientific, and Cultural Organization (UNESCO). Since its founding, IPSO has funded a dozen research projects (worth a total of \$2.1 million) with Palestinian and Israeli principal investigators working together. These grants have focused on areas of mutual interest between the two sides, including biomedicine, agriculture, water, and science education and have involved institutions such as Al-Quds University (Palestinian),

⁹ Shoham.

¹⁰ Eran Vardi (Director, Authority of Research & Development, Hebrew University of Jerusalem) and Elinor Slater (Authority of Research & Development, Hebrew University of Jerusalem), personal interview, 14 January 2008.

¹¹ Jim Giles, "Across the Great Divide," *Nature*, 31 October 2007; Dan Bitan, personal interview, 13 May 2008.

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Hebrew University of Jerusalem (Israeli), Bethlehem University (Palestinian), and the Weizmann Institute of Science (Israeli).¹²

Recent Successes of Cooperation

One example of successful scientific cooperation between Israeli and Palestinian researchers is in the area of nanotechnology, where IPSO has played a modest yet catalytic role. This success can be attributed to two outstanding scientists: Danny Porath and Mukhles Sowwan, who direct nanotechnology laboratories at the Hebrew University of Jerusalem and Al-Quds University respectively. Dr. Sowwan, a Palestinian from East Jerusalem, did his post-doctorate work in Dr. Porath's lab and with funding from IPSO, the French, German, and Japanese Governments, and two private American foundations, has now established the first nanotechnology lab in the Arab world. In standing up his lab, Dr. Sowwan purposefully selected some equipment different and complementary to Dr. Porath's. This decision has encouraged the two to cooperate on a number of projects. Dr. Sowwan admits that several of his Palestinian colleagues have disapproved of his cooperation with Israelis – saying that he should not “collaborate” with Israel as long as Palestine is occupied. He, however, argues that his lab will greatly advance Palestinian science and development and offers applications that can drive economic growth. For example, in the short-run, nanotechnology offers numerous industrial applications, such as industrial coatings made of nanoparticles. In the longer term, it could provide health applications for cancer and HIV and could make computers and other technological equipment smaller.¹³

Studies in the areas of water and agriculture also provide research successes attributable to people-to-people cooperation. (USAID has been active in water and agriculture in recent years with more than a dozen grants.)¹⁴ One important case study is the joint work of Professors Shahal Abbo and Uzi Kafkafi of Hebrew University and Mustafa Khamis and Hasan Dweik of Al-Quds University. With the support of IPSO, Belgium, Italy, and private sources, these researchers have established a sewage treatment plant at Al-Quds, which is used to treat waste water from a nearby West Bank village. The recycled water is then used to irrigate olive trees, chick peas, and other crops. Since chick peas are used to make hummus – which is a key staple in Middle Eastern diets – this project is an important example of Israeli-Palestinian cooperation that presents economic growth potential. The hope now is to apply this model to larger West Bank villages. Yet, this project also highlights the difficult challenges facing such Israeli-

¹² www.ipso-jerusalem.org; Dan Bitan (Co-Director, Israeli-Palestinian Science Organization), personal letter, 31 March 2008.

¹³ Jason Pontin, “In Tiny Particles, A Big Link in Jerusalem,” *The New York Times*, 23 September 2007. Danny Porath (Director, Nanotechnology Laboratory, Hebrew University of Jerusalem) and Mukhles Sowwan (Director, Nanotechnology Research Laboratory, Al-Quds University), personal interview, 13 January 2008.

¹⁴ “MERC Active and Recently Completed Projects,” *United States Agency for International Development*, 2007.

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Palestinian cooperation. For one, while Drs. Dweik and Khamis live in Jerusalem and therefore can travel back and forth through the checkpoints that separate Israel from the West Bank – residents of the West Bank must get special permits to travel to Israel – it is technically illegal for Israelis to travel into Palestine without permission from the Israeli Government. This mobility challenge means that, while jointly planned and coordinated, much of the laboratory and field work is conducted separately, but when done together can only be done in Israel, not Palestine.¹⁵

New Opportunities for Engagement

Genetics is another important area ripe for increased Israeli-Palestinian cooperation. Orthodox Jews, Israeli Arabs, and Palestinians suffer from genetic diseases and ailments – such as heart disease, diabetes, and hearing loss – associated with high levels of intermarriage within their own communities. 47% of Palestinian marriages are consanguineous (in the family), which can lead to negative health consequences for future generations. Orthodox Jews in Israel and abroad have been rather successful in counseling couples through the use of a large genetic database, but such monitoring has only been done informally and to a much lesser extent within distinct Palestinian communities. Incredible strides could be made in the overall field of genetic research through the study of a large set of Palestinian patients. However, Israeli and Palestinian geneticists alike warn against “FedEx science” – or sending the Palestinian data abroad to be studied. They argue that while foreign money and expertise are direly needed, the research must be undertaken in Israel and Palestine, so as to help advance Palestine’s scientific base and infrastructure.¹⁶

Scientists from Bethlehem University’s Hereditary Research Laboratory, the Weizmann Institute of Science’s Crown Human Genome Centre, the Hadassah Medical Center, and the Hebrew University’s Israeli Genomics Centre have jointly developed a comprehensive plan, with the help of IPSO, under which the Palestinian genetics, genomics, and bioinformatics infrastructure for research and services would be developed with the help of Israeli experts. More specifically, with the necessary medical facilities and data, Palestinians could better weigh the pros and cons of using a model similar to the international Orthodox Jewish model of prescreening 16-year-olds for seven genetic diseases, all of which would have a 25 percent chance of being passed on to future offspring if spouses share certain genes. Those involved

¹⁵ John Bohannon, “Bridging the Divide in the Holy Land,” *Science*, 21 April 2006; Mustafa Khamis (Professor of Chemistry, Al-Quds University) and Hasan Dweik (Executive Vice President and Professor of Chemistry, Al-Quds University), personal interview, 9 January 2008; “The Wandering Palestinian,” *The Economist*, 10 May 2008.

¹⁶ Dan Bitan; Doron Lancet (Head, Crown Human Genome Center, Weizmann Institute), personal interview, 10 January 2008; Moien Kanaan (Director, Hereditary Research Laboratory, Bethlehem University), personal interview, 13 January 2008; Batsheva Kerem (Director, Israeli Genomics Centre, Hebrew University of Jerusalem), personal interview, 14 January 2008.

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agree that the Palestinians need their own national genomics center but, while such a facility is being created, the Israelis could accommodate Palestinian scientists and provide them with the necessary training. The proposal also states that the development of a Palestinian center and the increase of joint research should also be coupled with two mobile clinics, one of the West Bank and another in Gaza, necessary to construct family pedigrees and collect DNA samples. Additionally, there is a need for a national Palestinian push to increase newborn screening for prevalent disorders. (However, it cannot be overstated that intermarriage will have to be addressed delicately within Palestinian communities because of its comparative prevalence and deep roots in traditional societies.) Furthermore, the project would provide short-term public health benefits, as well as long-term scientific and economic benefits. For example, international pharmaceutical companies would have an incentive to establish research and development facilities in Israel and Palestine to take greater advantage of the available generic data related to specific populations and of the scientific talent that would be fostered through such a large-scale effort. Scientific and medical insights into genetics and related disorders would have global benefits. According to IPSO's plan, the entire effort calls for two \$5 million stages over the next 5 years. Currently, governmental, non-profit, and corporate funders in the United States are considering this request.¹⁷

Another area of "low hanging fruit" for Israeli and Palestinian joint research (again being coordinated by IPSO) is Post-Traumatic Stress Disorder (PTSD). PTSD is almost an epidemic within Israeli and Palestinian communities that have experienced the worst of the conflict (e.g. missile attacks, bombings, road blocks), but even children far from the "front lines" can suffer because of news reports on television and general societal anxiety. More resources are necessary to diagnose and treat additional children and a long-range study should be undertaken to determine how children, who suffer from PTSD at an early age, resolve conflicts later in life. The U.S.-based National Alliance for Research on Schizophrenia and Depression (NARSAD) previously provided modest funding to the Israeli Bar Ilan University and Al-Quds University to observe a small set of Israeli and Palestinian children suffering from the disorder. Yet additional funds (approximately \$500,000) are needed to extend this team's research and treatment to a much larger set of children. Such a project would provide important benefits to children in Israel and Palestine and other areas of conflict around the world (e.g. Iraq). It would also help grow related Palestinian public health and research infrastructure, as currently Palestine has only a few dozen social workers and clinicians trained for such work in the entire country.¹⁸

¹⁷ Dan Bitan; Doron Lancet; Moien Kanaan; Batsheva Kerem.

¹⁸ Eyad Hallaq (Professor of Psychology, Al-Quds University), personal interview, 12 January 2008; Ruth Feldman (Professor of Psychology and Brain Sciences, Bar Ilan University), personal interview, 14 January 2008.

Lessons Learned from Cooperation

The benefits of engagement between Israeli and Palestinian scientists and academics are numerous but, frankly, difficult to measure. For one, the building of relationships between researchers on both sides may help overcome centuries of religious and cultural strife in a way that politicians cannot. As Palestinian nanotechnology scientist Mukhles Sowwan has said, “Science is a universal language, like music. It can make people understand each other.” Such bridge building, when focused on areas of mutual concern such as water and public health, can help to pave the way for peace, and help maintain it once a diplomatic solution is achieved. In this vein, Menahem Yaari, the President of the Israeli Academy of Sciences and a Co-Founder of IPSO, explained why he and Sari Nusseibeh, President of Al-Quds University, established IPSO: “We realized that if we wait for the fighting to end, then we’ll wait forever.” This cooperation has also helped the Palestinians build up their scientific and academic infrastructure – albeit there is considerably more to do. Al-Quds University can be seen as a burgeoning success in this way, with its pre-Oslo research budget of \$35,000 increasing to \$3 million today.¹⁹ During this same period, Al-Quds built up its physical infrastructure and focused on balancing this strategy of capacity building with a transition to a greater culture of research. Faculty are encouraged to undertake more basic and applied research, attend more international conferences, and submit more peer-reviewed articles for publication in international science journals. Prior to the post-Oslo foreign investment, Palestinian scientists and academics focused almost solely on teaching.²⁰ Since the return on investment in research and development is higher in Israel than anywhere else in the world (including the United States), lessons learned from the Israeli experience coupled with improving Palestinian scientific infrastructure could help to drive an engine of economic growth in Palestine.²¹ A subsequent rise in Palestine’s standard of living could also help to ease tensions with the more prosperous Israel.

Another potential benefit of Israeli-Palestinian cooperation is the “public diplomacy” boon available to the third-party donor countries. However, many Palestinian and Israeli scientists agree that European countries have done a much better job than the United States of including their own scientists in efforts that they fund. USAID’s MERC Program caps at 15% the amount of its grants that can support American participation and even takes pride in projects that involve no American scientists: “most of the newer grants do not even include a U.S. partner.” USAID would undoubtedly argue that research efforts that only involve Israelis and Palestinians reflect a greater efficiency of investment. However, there must be a balance

¹⁹ John Bohannon.

²⁰ Mustafa Khamis and Hasan Dweik.

²¹ Ephraim Kleiman (Professor of Economics, Hebrew University of Jerusalem), personal interview, 15 January 2008.

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between avoiding “U.S.-led” research and building relationships, trust, and understanding in a trilateral way.²²

Challenges to Israel-Palestinian engagement abound. While they have slowly improved, security and mobility are still major obstacles for Israelis and Palestinians. For example, many agricultural projects are impossible because the Israeli Government worries about Palestinians learning to use certain chemicals and fertilizers due to the bomb-making potential and fears of terrorism.²³ The cooperation of Israelis with Palestinians and vice versa is also still unpopular with many on both sides. Furthermore, Palestine’s scientific and academic infrastructure is still significantly behind that of Israel. Even top Palestinian Universities pay relatively meager and inconsistent salaries and it is difficult to keep Palestine’s “best and brightest” from emigrating. (This is exacerbated because no Palestinian institutions offer PhDs, which makes it even more challenging to attract them back to Palestine.) Some top Palestinian professors even rotate between their Palestinian positions and faculty posts abroad in order to supplement their salaries. If peace is in sight and foreign investment increases, the salaries of Palestinian scientists and educators must be a priority. But for a “renaissance” to take place in the Palestinian educational system, funders may need to “pick winners” – leaders and wiser bets – among Palestinian scientists and academics with the hope of a “trickle-down” effect.²⁴ Reversing the Palestinian “brain drain” will help to strengthen a civil society, a mandatory building block of an independent Palestinian State. Encouragingly, the Palestinian Ministry of Higher Education and Scientific Research is currently finalizing a long-term research and education strategy that will partly seek to address these issues.²⁵

In the end, important lessons can be drawn from the experience of Israeli-Palestinian scientific engagement. First, while providing research funding for Israelis and Palestinians, third-party donor countries also help to facilitate dialogue and reconciliation. Second, foreign nations benefit diplomatically from trilateral involvement. Third, Palestine still faces a long road ahead in terms of improving its scientific and academic cultures and infrastructures. Finally, short-term public welfare must always be balanced with and cannot be accomplished in lieu of long-term progress and reform.

²² Shahal Abbo (Professor of Agriculture, Hebrew University of Jerusalem) and Uzi Kafkafi (Professor of Agriculture, Hebrew University of Jerusalem), personal interview, 10 January 2008; Vardi and Slater, “The Middle East Regional Cooperation (MERC) Program,” *United States Agency for International Development*, 2007.

²³ Rafael Carel (Head, Track of Occupational and Environmental Health, University of Haifa), personal interview, 10 January 2008.

²⁴ Avi Hofstein (Head of Department of Science Teaching, Weizmann Institute of Science) and David Fortus (Department of Science Teaching, Weizmann Institute of Science), personal interview, 10 January 2008.

²⁵ Mustafa Khamis and Hasan Dweik; Moien Kanaan.

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Science as a Tool for U.S. Foreign Policy

A “blue-ribbon” task force of the U.S. National Science Board recently argued that science can serve as a “soft power” that contributes “to building more stable relations among communities and nations through cooperation and by creating a universal language and culture based on commonly accepted...values of objectivity, sharing, integrity, and free inquiry.”²⁶ In a 2004 Zogby International survey, only 7% of the Jordanians polled had a favorable opinion of U.S. policy toward the Palestinians and a mere 2% had a favorable attitude toward its Iraq policy. In contrast, 83% of Jordanians had a favorable impression of American science. Even fewer Moroccans approved of U.S. policy toward Palestinians and Iraq, but 90% of the respondents held its science in high regard.²⁷ In another Zogby poll, at least 80% of those polled in Egypt, Kuwait, Iran, and Pakistan held a favorable opinion of U.S. science.²⁸ In spite of such data, the United States still fails to maximize one of the sharpest arrows in its foreign policy quiver.

In 2004, the U.S. Defense Science Board argued that “there appears to be enormous potential for the Department of State and the U.S. Agency for International Development to employ science...more aggressively in pursuit of their missions.”²⁹ This echoes the recommendations of a 2006 National Research Council study commissioned by USAID:

Foreign assistance, probably more than any other international endeavor, provides opportunities for representatives of the U.S. government and its partners to join with political and economic leaders, intellectuals, and activists of dozens of countries in continuing, constructive dialogues and in concrete projects designed to enhance the quality of life of hundreds of millions of people. [Science and technology] are often the keystones for successful projects. The shared political and economic dividends from these activities can be enormous.³⁰

The National Research Council also recommended that USAID “reverse the decline in its support for building [science and technology] capacity within important development sectors in

²⁶ *International Science and Engineering Partnerships: A Priority for U.S. Foreign Policy and Our Nation's Innovation Enterprise*, Task Force on International Science, U.S. National Science Board, 14 February 2008.

²⁷ *Report of the Defense Science Board Task Force on Strategic Communication*, Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, September 2004.

²⁸ *Changing Minds, Winning Peace: A New Strategic Direction for U.S. Public Diplomacy in the Arab & Muslim World*, Report of the Advisory Group on Public Diplomacy for the Arab and Muslim World, Committee on Appropriations, U.S. House of Representatives, 1 October 2003.

²⁹ *Report of the Defense Science Board Task Force on Strategic Communication*.

³⁰ *The Fundamental Role of Science and Technology in International Development: An Imperative for the U.S. Agency for International Development*, Committee on Science and Technology in Foreign Assistance, National Research Council, 2006.

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developing countries.” To the credit of the State Department and USAID, the relatively new position of Science & Technology Adviser to the Secretary of State is now double-hatted in the same role for the USAID Administrator. Furthermore, just last month, the Departments of State, Education, and USAID co-hosted a University Presidents’ Summit in Washington, which convened public, private, and academic leaders from around the world to discuss “strengthening global higher education...with a focus on basic sciences and technology.”³¹ However, at the same time, USAID’s MERC program has seen its already embarrassingly meager budget cut from \$6 million in 2007 to less than \$5 million this year and possibly as little as \$3 million in 2009. Granted, funding for the larger West Bank-Gaza Initiative may reach as much as \$220 million this year – but the majority of those funds provide general economic assistance to the Palestinian Authority and support programs in areas such as law enforcement and narcotics control. Money is allocated for general agriculture and education, but little is earmarked for science and research.³² Furthermore, based on a proposal from the Washington, DC-based Alliance for Middle East Peace (ALLMEP), Congress allocated \$9 million to USAID for new reconciliation efforts in areas including education, medicine, and the environment, but not basic scientific research.³³ Of course, Congressional Appropriators could be partly responsible for the MERC cuts – but, regardless of where blame lies, the decision is shortsighted.

Secretary of State Condoleezza Rice has encouragingly championed the idea of “transformational diplomacy,” that is “helping to build and sustain democratic, well governed states that respond to the needs of their people, reduce widespread poverty and conduct themselves responsibly in the international system.” This concept has been coupled with the creation of the Millennium Challenge Corporation (MCC), which has the laudable and broad mission of “reducing poverty through economic growth” and will have a 2009 budget over \$2 billion.³⁴ However, the MCC does not support Palestine and focuses on issues such as rule of law, civil liberties, and immunization, not scientific research. Again, the U.S. is wise to seek new “soft” and creative avenues of foreign policy and “put its money where its mouth is,” but science is still underappreciated.

Science Engagement: A New Take on Public Diplomacy

The National Science Board has stressed that “the U.S. puts its best face forward in international [science] partnerships, where the rest of the world can fully see the many positive attributes that make the U.S. a great place to conduct science...as well as a country that upholds

³¹ Nina V. Fedoroff (Science & Technology Adviser to the Secretary of State and the USAID Administrator), personal letter, 21 December 2007.

³² *Congressional Budget Justification, Foreign Operations*, U.S. Department of State, 29 February 2008.

³³ www.allmep.org

³⁴ *Congressional Budget Justification, Foreign Operations*.

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strong values.”³⁵ Yet, in order to show that “best face,” the United States needs to reassess how it conducts international science. First, as the National Research Council has argued, “USAID should reverse the decline in its support for building [science and technology] capacity.”³⁶ The U.S. should not abandon important “feel good” public welfare projects, such as promoting breast cancer awareness among Palestinian women, but these efforts should not come at the expense of research.³⁷ Second, U.S. international scientific investment should be better coordinated between government stakeholders, such as USAID, the National Science Foundation, the National Institutes of Health, and the Department of Agriculture.³⁸ Third, the U.S. should seek to share best practices and partner with other likeminded donor nations, particularly its European Allies, as has been recently suggested by the National Science Board.³⁹ This would offer improved economies of scale and would help to avoid redundancies. In this vein, the donor countries should seek to redirect even a very modest amount of the billions of dollars in annual aid to the Palestinians toward research areas, such as genetics and PTSD. These efforts will offer very important public health benefits, though admittedly, over a longer period. Fourth – and easiest to accomplish – the U.S., especially USAID, should take a page from the European playbook and revise its policies to allow greater American participation in Israel-Palestinian research efforts. Finally, the U.S. Government should reach out more aggressively to the private sector in seeking to accomplish its goals and to overcome an increasingly difficult budgetary environment. The State Department’s Advisory Committee on Transformational Diplomacy argues exactly this:

Unofficial resources increasingly will dwarf official government resources in the future; the growing number of corporations among the wealthiest entities in the world is one indication of this trend. Another example is the Gates Foundation, which currently boasts an annual global health budget greater than that of the World Health Organization...it will be critical for the [State] Department to improve its ability to channel the energy and resources of the private sector in support of its objectives in the many areas where there is clear alignment of interests.”⁴⁰

One important success story occurred in 2007 when, in spite of the billions of dollars a month that the U.S. Government was investing in its Iraq War effort, resources were not readily available to relocate Iraqi scientists and academics targeted for assassination and kidnapping by

³⁵ *International Science and Engineering Partnerships.*

³⁶ *The Fundamental Role of Science and Technology in International Development.*

³⁷ “Breast Cancer a Health Risk for Women Worldwide: First Lady Laura Bush Brings Message of Hope and Health to the Middle East,” America.gov, 26 October 2007.

³⁸ *The Fundamental Role of Science and Technology in International Development.*

³⁹ *International Science and Engineering Partnerships.*

⁴⁰ *Report of the Advisory Committee on Transformational Diplomacy*, Department of State 2025 Working Group, October 2007.

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insurgents temporarily to safer countries. With a matching grant from the Gates Foundation, the State Department was able to provide \$10 million to the International Institute of Education's Scholar Rescue Fund and may have saved the lives of hundreds of Iraq's top intellectuals.⁴¹ Furthermore, the recent State Department-USAID-Education Department University Presidents' Summit was possible because of the support of at least one private foundation to a NGO partner of the State Department.⁴²

The U.S. Department of Agriculture has a new initiative that can serve as the perfect model for applying all five of the aforementioned recommendations to the Israeli-Palestinian conflict.

MARD: A Vision for the Future

In 1972, the Israeli and U.S. Governments both contributed \$30 million toward for a total endowment of \$60 million (later increased to \$100 million) to create the U.S.-Israel Binational Science Foundation (BSF) to support joint Israeli-American basic and applied research projects.⁴³ Similarly, in 1977, the U.S.-Israel Binational Agricultural R&D Fund (BARD) and the U.S.-Israel Binational Industrial R&D Foundation (BIRD). Today, these three highly-regarded institutions provide approximately \$10-\$12 million each (depending on endowment income) in annual grants to Israeli-American science and technology efforts.⁴⁴ However, no such comparable entity exists to support Israeli-Palestinian or, even better, Israeli-Palestinian-American science.

In 2006, with BARD as a model, the Agricultural Research Service of the U.S. Department of Agriculture established the Multinational Agricultural Research and Development Initiative (MARD):

To encourage cooperative agricultural [research and development] among participating scientists (Jordanian, Palestinian, Israeli, and American) to address challenges of mutual interest to the Middle East region. The initiative will facilitate and promote increased harmony through scientific collaboration, economic development, and increased food quality and security.⁴⁵

⁴¹ Victoria Kim, "Gates Foundation to Help Iraqi Academics Escape Persecution," *Financial Times*, 16 August 2007.

⁴² Nina V. Fedoroff.

⁴³ www.bsf.org

⁴⁴ www.jewishvirtuallibrary.org

⁴⁵ "Multinational Agricultural Research and Development Initiative (MARD)," Agricultural Research Service, U.S. Department of Agriculture, June 2006.

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However, two years later, MARD has only hosted a few planning conferences and has not made a single research grant. MARD would like to raise \$2 million (\$500,000 from each partner country) to launch a 3-year pilot grant program to assess the efficacy of MARD as a long-term entity. Israel has already allocated its share and the U.S. had escrowed the majority of its portion, but neither Jordan nor Palestine is in a current position to fund their quarters.⁴⁶ If the U.S. corporate and/or philanthropic community could raise a total of \$1 million on behalf of the Palestinians and Jordanians, MARD could immediately become a reality. If the 3-year trial run is a success, hopefully larger public and private resources could be marshaled to establish a perpetual endowment on par with BSF, BIRD, and BARD.

The launch of MARD would exemplify “transformational” science diplomacy on the part of the U.S. Government. The public-private nature of the funding would make MARD a model for future international science engagement. MARD could increase its impact by coordinating its efforts with other U.S. entities, such as USAID. Furthermore, MARD could also be easily be broadened to include the European Union and thus become a showcase for multilateral responses to the conflict. MARD would also be in a position not only to support individual scientists and their institutions, but to cooperate with and partially fund established and successful coordinating bodies, of which the best example is the Israeli-Palestinian Science Organization. Finally, MARD could represent a godsend for U.S. public diplomacy in the region, as its best and brightest in the agricultural sciences could undertake ground-breaking research side-by-side with Palestinian, Jordanian, and Israeli counterparts. In a modest way, MARD could serve to kick-start increased Israeli-Palestinian scientific cooperation, help ameliorate the conflict, and maintain the peace once it is achieved.

⁴⁶ Edward Knipling (Administrator, Agricultural Research Service, U.S. Department of Agriculture) and Ibrahim Shaqir (Acting Director, Office of International Research Programs, Agricultural Research Service, U.S. Department of Agriculture), personal interview, 24 April 2008.