Advancing Palestinian Science and Promoting Cooperation under Long-Term Occupation

Michael Thomas

Depending on the circumstances, science and technology (S&T) projects can help accomplish a range of objectives in conflict zones. They can humanize the adversaries to each other; build confidence in assessments of the capabilities and intentions of adversaries; ameliorate conditions experienced by the stressed populations; support economic development; develop new modes of humanitarian assistance; and, in the optimum case, help establish frameworks for resolving the political conflict.

Scientists and diplomats have for decades explored roles for S&T cooperation in the Israeli-Palestinian conflict similar to those that have been helpful in other conflict regions. Such laudable efforts have been inhibited by on-the-ground realities in the occupied territories (East Jerusalem, the West Bank, and Gaza) where Israeli political and security concerns override all other considerations. The lengthy Israeli occupation, failed efforts at final status agreements, and violence on both sides have generated deep animosity and distrust between Israelis and Palestinians, creating major obstacles to science engagement or any other beneficial engagement. The immediate political situation presents dire threats to the prospects for a peaceful resolution, as those on both sides with maximalist positions gain in power.
Thus science and technology projects, whether carried out unilaterally or jointly, cannot bring about peace in the short term, and in fact seem naïve if intended to achieve a breakthrough in bilateral relations. The severe constraints on developing and using Palestinian scientific capabilities are probably unique in the world, and provide powerful testimony of the importance of access to the modern tools of science and technology both to achieve broader development objectives—which would be a precondition for any sustainable peace between the two sides—and to provide a platform for more effective bilateral engagement. Engaging the broader international community in such projects, however, can achieve two things as part of a broader policy of selective engagement supported by the United States, the European Union (EU), and others. It can ameliorate the worst consequences of occupation and signal that the United States and other major donors and sponsors will be persistent in supporting and encouraging those who choose peaceful cooperation in science, or in any field, and not those who block progress by violent or other means.

This article seeks to frame the political issues related to science and diplomacy in this protracted and complex conflict in several ways. It describes the barriers to progress posed by Israeli occupation measures and weak, divided Palestinian leadership; examines some of the effects of the conflict on Palestinians, identifying Palestinian human development needs that may be addressed by science and technology; and provides suggestions to policy makers for an approach that will maximize intended benefits and minimize harm.

The Political Context Limiting Science

Sustainable scientific cooperation requires that both sides view it as being in their interest (either scientifically, politically, or both) to undertake collaboration. Once that threshold is met, there needs to be an atmosphere where some trust exists and conditions that—even in the most tense situations—can facilitate interaction and exchange. For example, even during the height of the Cold War, U.S. and Soviet scientists had an interest in cooperating, and the two governments—even while involved in a hostile relationship—provided visas and removed certain barriers to encourage and facilitate cooperation. The situation between Israeli and Palestinian scientists and technical communities lacks these preconditions. Thus political and societal issues limit meaningful cooperation.

Israel has occupied the West Bank, East Jerusalem, and Gaza (the occupied Palestinian territories or OPT) since the 1967 war. While Israel acceded to the Hague Regulations and Geneva Conventions, it does not recognize as enforceable the obligations of a belligerent occupier under those conventions, among which are to protect the civilian population and their property and institutions, and not to settle or enable the settlement of citizens of the occupying power in the territory.

The Oslo Accords of 1993 and 1995 provided for recognition of the State of Israel by the Palestine Liberation Organization (PLO), and recognition of the PLO as
the authorized representative of the Palestinian people. The accords anticipated substantial autonomy for a new Palestinian Authority (PA) within designated areas of the West Bank and Gaza, in return for security undertakings by the PA. In the West Bank, the PA was to have civil and security authority within a small Area A (18 percent of the West Bank exclusive of East Jerusalem), civil but not security powers in Area B (21 percent), and no powers except as delegated from Israel in Area C (61 percent). The land comprising Area C effectively divides the areas subject to some Palestinian control (A and B) into 227 enclaves. Permanent status agreements were to be negotiated by 1999. The accords made no reference to preexisting legal rights; they were political deals, and their success depended on political support in Israel, among Palestinians, and by American administrations.

Generally, the security of Israelis was enhanced as Palestinian security forces were trained under American auspices and worked closely with the Civil Administration (Israel’s governing body in the West Bank) and the Israel Defense Forces. However, negotiations on final status agreements repeatedly foundered, and Palestinians were increasingly frustrated and angry, both with the Israelis and with their own leaders. After talks hosted by President Bill Clinton failed at the end of 2000, a violent intifada (“shaking loose”) broke out, which unlike the earlier 1987 intifada included suicide bombers deployed against both official and civilian Israeli targets.

The Israeli response was strong and comprehensive. It ended almost all Palestinian employment in Israel, which had a major impact given the near complete dependence of the Palestinian labor market on that of Israel. A road system begun in the 1990s, not available to those with Palestinian license plates, was further built out, forcing Palestinians to take circuitous routes through multiple checkpoints in order to reach fields or schools or markets. More and more land was expropriated, and structures—homes, wells, and businesses—that did not have permits, were razed by the Israeli authorities. Most permit applications were denied or not acted upon. Settlement population surged. A sophisticated barrier was undertaken to prevent armed attacks, but instead of following the 1967 ceasefire line, known as the Green Line, the barrier swerved to incorporate on the “Israeli” side existing and planned settlements, and thousands of hectares of farms and much of the access to water, which has significant impacts on the potential for agricultural production. The International Court of Justice found in a 2004 advisory opinion that the barrier violated the Hague Regulations and Geneva Convention IV, but Israel does not recognize the court’s jurisdiction.

Current Israeli Prime Minister Benjamin Netanyahu denounced the Oslo Accords when they were before the Knesset (during the earlier Rabin government) as a violation of the historic right of the Jewish people to the land of Israel and as a mortal danger to their security. He said in 2009 that he accepted the concept of two states, but he rejects conceding any part of Jerusalem, the Jordan Valley, the Dead Sea, or major settlements, and rejects Palestinian control over borders,
Advancing Palestinian Science and Promoting Cooperation under Long-Term Occupation

Michael Thomas

air space, electromagnetic spectrum, and aquifers, among other elements of sovereignty. His government has placed political conditions on its obligations to the PA. For example, after the 2012 resolution providing Palestinians with non-member state observer status in the United Nations General Assembly, Israel diverted tax revenues, which under the Paris Protocol to the Oslo Accords are to be transferred to the PA to pay electric power bills. (The United States froze payments to the United Nations Educational, Scientific and Cultural Organization in 2011, when Palestine was granted membership in that organization). The tax revenues constitute more than 30 percent of the PA’s operating budget, and the power bills were not owed by the PA, but by private companies in the West Bank and Gaza. The result was to deny the PA the ability to pay its bills, including the payroll of its security forces, and instead to pay the bills of private users.

The aggregate effect of these measures was to end most interaction between the two peoples. Technical personnel could not reach places of employment, much less apply their skills. Collaborations that had overcome the general regional tensions became more difficult to pursue. Sustained interest in scientific cooperation under such conditions is almost impossible to imagine.

While the occupation is the major determinant of political, social, and economic life for Palestinians, they have also suffered from poor and divided leadership, corruption, patronage, lack of transparency, and unreliable support from the Arab world and the rest of the international community. Although Fatah has renounced violence, Hamas has not. However, Palestinians voted for Hamas in the 2006 Palestinian parliamentary election more as a reaction to the failings of the Fatah-led PA—and as an attempt to exorcise the humiliation of occupation—than as an endorsement of Hamas’s militant and Islamist program. Since 2007, mutual animosity between Fatah and Hamas and the Israeli blockade of Gaza have fostered divergent polities in the West Bank and Gaza. PA Prime Minister Salam Fayyad has said that the PA spends 58 percent of its budget in Gaza, but much of that is payroll for 64,000 Fatah loyalists who are told not to go to work. While the money provides support for the fragile Gaza economy, it also demonstrates the dysfunctional nature of Palestinian politics. Efforts at reconciliation between the two movements are opposed by the United States and Israel, given Hamas’s designation as a terrorist organization, and have repeatedly foundered over ideology, strategy, and skepticism about exchanging the control each has in its own enclave for an uncertain joint future.

In August, 2009, Prime Minister Fayyad announced a two-year plan for building the institutions of a state. By late 2010, the World Bank determined that if the PA “maintains its current performance in institution-building and delivery of public services, it is well-positioned for the establishment of a state at any point in the near future.” By September 2011, the chair of the committee coordinating major donors to the PA said that “Palestine has achieved more than many states that are full UN members.”
However, no matter how efficient the PA institutions, there can be no functioning state while there is very little control over the economy. In its reports on the “deepening fiscal crisis” since 2010, the World Bank has stressed that significant economic and social progress cannot be made while Israel continues comprehensive constraints on movement, as well as on access to land, water, the electromagnetic spectrum, and trade. The PA runs significant deficits, and relies upon the donor community and borrowing to fill the gap. As tax revenues are withheld and donor support proves unreliable, payrolls are not met and the economy sputters. Public protests against Prime Minister Fayyad and the PA have become common occurrences.

PA President Mahmoud Abbas has not been able to demonstrate that the Oslo bargain can lead to Palestinian sovereignty. Worse, polls show that Palestinians increasingly believe that Hamas’s willingness to use violence is more effective in gaining attention and results than the PA’s steady commitment to nonviolence and building institutional capacity. The PA’s legitimacy is subject to attack, as its officers serve beyond elected terms of office and the PA cannot convene its legislature or run elections. Qatar and Turkey have begun supporting Gaza, and thereby Hamas, in preference to the PA. The PA’s closest Arab ally was Egyptian President Hosni Mubarak, now replaced by Muslim Brotherhood leaders whose natural allies are Hamas. Yet the PA (when it can meet its payroll) is the largest employer in the OPT. Further, the PA is useful for Israel, because of its security guarantee and because it relieves Israel of much of the financial burden of occupation. Both Israel and the United States need the PA as a way of managing relations with Palestinians. Nevertheless, knowledgeable observers are increasingly doubtful that the current PA can sustain itself financially or politically. If it implodes, the political future for Palestinians is unknowable, but likely chaotic and potentially violent.

The Role of Palestinian Science

The financial fragility of the PA means that S&T projects must be funded by outside sponsors. However, many of the most critical needs are public sector needs—such as health, water, and addressing environmental degradation—and it is important to continue to build and publicly to affirm the capability of the PA to manage public projects and deliver services. Therefore, S&T programs need to involve the PA, but not depend upon it for financing.

Economic and social effects of the forty-six-year occupation define both the needs of the population and the opportunities for science and diplomacy. The effects vary by location and sector of the economy, but are severe in all areas of potential scientific and developmental cooperation. Real gross domestic product per capita is about $2,000 in the West Bank and $1,100 in Gaza, compared to more than $30,000 in Israel. Palestinian living standards are now below those of Jordanians and Egyptians, and are more comparable with Yemenis. Finding opportunities blocked
at home, many educated and skilled Palestinians have emigrated, awaiting the day when their talents can be productive in Palestine. OPT-wide unemployment, even given massive government payrolls, was recently 21 percent, but more than 30 percent in Gaza, with youths fifteen to twenty-nine unemployed at rates of 26 percent (West Bank) and 46.5 percent (Gaza). Other socioeconomic data, including those for health and life expectancy, are dire.

Conditions have been much worse in Gaza. Israel believes that its withdrawal of defense forces and settlers in 2005 ended any obligations as a belligerent occupier. When Hamas took over Gaza by force in 2007, Israel designated it an enemy entity. Israeli officials speak openly of “economic warfare” and (according to a November 3, 2008, cable from the U.S. embassy in Tel Aviv released by Wikileaks and widely reported in the Israeli press) told U.S. diplomats that the intent is to keep the Gazan economy on the brink of collapse, at the “lowest level possible consistent with avoiding a humanitarian crisis.” By mid-2009, very few food items were allowed into Gaza, and only 30 to 40 commercial items were allowed, compared to 4,000 to 7,000 items prior to the blockade. Exports, which had amounted to 4,800 truckloads from January to May 2005, were 130 truckloads from January to May 2012. (The 2005 Agreement on Movement and Access, negotiated by then-Secretary of State Rice, provided for 400 truckloads per day.) By 2008, 95 percent or more of Gazan industries were shuttered, and all but 20,000 of 120,000 industrial jobs were lost. Israel’s Operation Cast Lead in 2008 and 2009 physically destroyed most of Gaza’s industrial, power, water, waste treatment, and agricultural facilities.

Two areas of economic activity, agriculture and telecommunications, have been the objects of S&T projects and have the potential for profitable use of S&T in future applications. They demonstrate the kinds of obstacles faced in other areas where science and technology projects are also urgently needed.

Agriculture

Agriculture was 9.3 percent of the Palestinian economy in 1999, but only 4 percent in the first quarter of 2012, largely because of restricted access to arable land, water, and markets. In the West Bank, the Israeli settlement enterprise controls about 42 percent of all land, including land within master plans and land made inaccessible by “settler-only” road networks. The Ministry of Defense has stated that another 10 percent of the West Bank is earmarked for settlement expansion.

Expropriations, settlements, roads, the security barrier, and layers of bureaucratic controls covering all activity combine to fragment the area into ever smaller, more disconnected enclaves. One key to the future is the disposition of Area C, the three-fifths of the West Bank under sole Israeli control. It is the only contiguous land connecting 227 separate areas classified A or B. Area C contains 63 percent of the arable land, and the Jordan Valley alone has one-third of the underground water resources; however, 94 percent of the valley is off-limits to Palestinian development. Palestinian farmers must buy water transported in tanks.
The World Bank found that while 10,000 settlers received 4,400 cubic meters of water apiece annually, 2.5 million Palestinians averaged 52.6 cm each. In addition, Israeli designation of materials deemed “dual-use,” (i.e., with both civilian and military use) and, therefore, banned or tightly regulated, impacts not just value-added industries, but also agriculture. In the most recent seven-year period, Israel reduced the amount of nitrogen, phosphorus, and potassium allowed in fertilizers three times. Farmers are limited to low-intensity production, and then they must transport their produce through circuitous routes through multiple checkpoints, including off-loading and re-loading on Israeli trucks at borders. Export to East Jerusalem, the historical hub of Palestinian economic life, is banned. Agriculture in Gaza has been crippled by the deteriorating water situation, the ban on exports, and Israel’s expanded buffer zones. Until the ceasefire after the November 2012 Israeli incursions, when Israel narrowed the perimeter zone, the “no-man’s land” at the Israeli borders made 48 percent of Gaza’s arable land inaccessible, and repeated Israel incursions compacted other ground so that it was not farmable with the minimal irrigation available to Gazans. The coastal aquifer is becoming saline. Wastewater treatment is minimal, since facilities have been destroyed in Israeli incursions and power is undependable, so that some 24 million gallons of sewage is dumped every day, mostly into the sea; chloride and nitrate levels of well water are ten times World Health Organization standards; and 90 percent of wells are contaminated.

Science and technology have much to offer in advanced agricultural methods, water treatment and irrigation technology, and related systems, but will only provide these benefits once political obstacles are removed.

Telecommunications

An efficient telecommunications system is essential for a modern economy and is also central to any sustained S&T development. The West Bank has two Palestinian telecom companies seeking to provide service. However, Israeli proscriptions and slow PA regulatory development substantially impede progress. Each Palestinian company needs to place seventy-five to one hundred towers in Area C in order to provide coverage, but they are prohibited from doing so. They must choose between large gaps in coverage and hiring Israeli firms to build and maintain towers. In the latter case, they would be required to lease frequencies from an Israeli firm for $2,000 per tower per year, rather than use their own frequencies. In the coverage gaps that result from the current regulatory barriers, those using Palestinian phones pay roaming fees to Israeli firms that increase the bill by 30 percent. Israel has not allowed Palestinian carriers to use third generation (3G) transmission technology, necessary to support smart phones. This huge competitive disadvantage grows as mobile technology supports more applications and Israeli firms move into 4G systems. One of the fastest growing and profitable areas in IT is designing applications for mobile devices. Palestinians have proven
adept at such design work, but the industry is stunted by the inability to build out networks. Any project in the West Bank must also cope with difficulties in acquiring visas for investors and project participants who are not residents, and with dual-use restrictions on materials, machinery, and equipment. If a Palestinian company cannot import switches, it must route local calls to and from Jordan, across Area C. These impediments alone are estimated to add $20 million annually to costs, most of which goes to Israeli companies. Under present conditions, there is little incentive for Palestinians to develop their own capabilities. Again, applied S&T as well as S&T policy development have ready answers for most if not all of these issues, but projects to solve the problems await political will and engagement.

Supporting Science under Occupation

The constraints that have accreted under occupation seriously impede S&T development in the OPT and greatly constrain the prospects for S&T projects. Travel is difficult and sometimes impossible; consultants, evaluators, and investors need visas, which can be denied, delayed, or conditioned. Materials and equipment are subject to dual-use rules and may be barred. Most activities require permits, which are often not forthcoming. In Gaza, most technical and industrial infrastructure—including the laboratories of the Gaza Islamic University—was destroyed in Operation Cast Lead in 2008 and 2009. Students and academics are not allowed to travel from one OPT to the other. Projects generally cannot include participants from Jerusalem and any other OPT. Clean water or dependable power may not be available.

The World Bank and others have found that the PA has developed its institutions well given the constraints of the occupation. Such institutions are ultimately essential for any development of science and application of it to meet societal priorities. As President Clinton has said, “Palestinians are a hard-working and an incredible community. They have done remarkably well outside their country.” Palestinians often tell officials, investors, and NGOs (nongovernmental organizations) that they need flexibility and freedom more than they need measures taken on their behalf. The obstacles they face are serious and complex. Nevertheless, many international partners, including the U.S. Agency for International Development, EU and individual European nations, NGOs, and Arab states, continue to work diligently to establish structures of cooperative effort and to ameliorate the conditions of occupation. Such efforts have borne fruit in fields such as academic research and training projects as well as in IT and the health sciences. However, much more needs to be done, and the further effort must be part of a strategic pivot in how the United States and other sponsors deal with Israel, the PA, and the Palestinian issues.

It has been declarative American policy to support the PA. Many doubt the continued efficacy of the Oslo model. However, support of the peaceful efforts of
the PLO and PA to build capacity to provide services—and hope—to Palestinians, certainly remains in the American national interest, particularly as the alternatives are Hamas and chaos. Yet the efforts have been, and are, meager, inconsistent, and quiet when they should be robust, directed, and public.

Israel is a major non-NATO ally of the United States and the recipient of billions of dollars annually in security assistance. While the United States has the largest role of any outsider in Israeli-Palestinian relations, that does not mean that American judgments concerning the occupation or Palestinians are shared by Israel. Israeli decisions relating to Palestinians, including those relating to S&T projects, are often framed in terms of Israel's perceived security needs. It is politically difficult (and counter to long-stated U.S. policy) for an American administration publicly to question Israeli decisions that have a claimed security nexus.

The United States has averaged about $600 million in aid to the Palestinians annually for the past several years; some $200 million is direct budgetary aid, $100 million is non-lethal security aid, and $300 million is nongovernmental project assistance. Congress insists that aid to Palestinians be politically conditioned, unlike that to Israel, and aid is repeatedly withheld. European nations do more with S&T projects, but lack political leverage to deal with the kinds of obstacles the occupation supplies. The result of these shortcomings has been to undercut the PA, and also to help persuade others, among them Gulf donors, that the PA may not be worthy of their support.

The challenge is to structure policy to meet real needs and prevent the further erosion of belief in a negotiated final status agreement, while giving Israel reasons to participate or to consent. Elements of that approach would include

- making the investment match the needs and the political stakes by substantially raising the amount of money put into water, health, wastewater treatment, technical training, and other programs;
- making the case to Congress that strong support of S&T and development efforts, and of the PA, is now the only viable policy consistent with American interests, and that indifference or wild swings in support only strengthen Hamas;
- making the same case to the Israeli people;
- pressing Israel to limit constraints on Palestinian activities to those objectively required by security considerations, again being willing publicly to point out when that standard is not met;
- publicizing projects and praising participants for progress in order to encourage participation and make clear the determination of the United States and other sponsors;
- focusing major efforts on problems shared by Israelis and Palestinians, including communicable disease and other health issues and environmental problems (untreated waste water among them);
• concentrating on participants less driven by politics or ideology, including science researchers and IT developers; and
• employing science and technology to define new ways of thinking about major problems—here, a leading target is water, where the resource is usually seen with a zero-sum mindset and as an element of power over the land.

One of the greatest challenges to long-term cooperation (outside of the political ones described earlier) is the reality of the asymmetry of capabilities. Israel remains a scientific superpower with close institutional and professional connections to much of the highly developed science nodes around the world. A long-term situation for both parties would benefit from elevating the capacity of Palestinians to undertake high-level science activities (either cooperatively with Israel, or, just as importantly, with other developing science communities in the region).

Cooperative science and technology programs alone cannot make Israelis and Palestinians trust each other or make political decisions that carry what seem to them to be existential risks. However, the relationship between these two peoples is a source of sparks in a region full of tinder. As part of a broader policy of engagement that encourages and rewards those who favor nonviolent resolution of the conflict, S&T programs can accomplish much more than they have thus far been permitted to do. The United States and other sponsors have to be clear and persistent in publicly declaring the need for S&T programs that address Palestinian living conditions and other needs, the capabilities and reliability of Palestinian institutions in supporting such programs, the duty of Israel to enable rather than block them, and the advantages to Israel in doing so.  