



Closing the Nuclear Trapdoor in the U.S.-Turkey “Model” Partnership Opportunities for Civil Nuclear Cooperation

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ACRONYMS AND ABBREVIATIONS

123 Agreement	bilateral nuclear cooperation agreement concluded between the United States and a foreign country under Section 123 of the Atomic Energy Act
AKP	Adalet ve Kalkınma Partisi (Justice and Development Party)
AP1000	Advanced pressurized water reactor, Westinghouse designed
BOO	build-own-operate
BOT	build-operate-transfer
CSO	civil society organization
DOE	Department of Energy (United States)
EDAM	Centre for Economics and Foreign Policy Studies (Turkey)
ENR	enrichment and reprocessing
EU	European Union
EUAS	Electricity Generation Company (Turkey)
EXBS	Export Control and Related Border Security Program (U.S. State Department)
HEU	highly enriched uranium
IAEA	International Atomic Energy Agency
IGA	Intergovernmental Agreement
INPO	Institute of Nuclear Power Operations
JUST	Jordan University of Science and Technology
MOU	Memorandum of Understanding
MWe	megawatt electric
NATO	North Atlantic Treaty Organization
NNSA	National Nuclear Security Administration (United States)
NNWS	Non-Nuclear Weapon State
NPP	nuclear power plant
NPT	Treaty on the Non-Proliferation of Nuclear Weapons
NSG	Nuclear Suppliers Group
MEPhI	National Research Nuclear University (Russia)
PSI	Proliferation Security Initiative
TAEK	Turkish Atomic Energy Authority
TC	Technical Cooperation (in reference to the IAEA TC Programme)
TSS	technical support services
TUSIAD	Turkish Industry and Business Association
VVER	Abbreviation for a Russian series of pressurized water reactors
WANO	World Association of Nuclear Operators

Closing the Nuclear Trapdoor in the U.S.-Turkey “Model” Partnership

Opportunities for Civil Nuclear Cooperation

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INTRODUCTION: WHY CIVIL NUCLEAR COOPERATION?¹

The strategic partnership between Turkey and the United States remains vital to both countries, but has struggled to adapt to a post-Cold War world. Under the ruling AKP (Justice and Development Party), Turkey has developed an assertive and increasingly independent voice on the international stage, articulating views that do not always align with U.S. preferences. Recognizing the need for a new bilateral paradigm, in 2009 the Obama Administration called for a “model partnership” to broaden and deepen cooperation. Civil nuclear issues are currently a trapdoor in this “model partnership,” through which fall many unexploited opportunities for enhanced bilateral cooperation.

Given a plethora of common concerns—from free trade to the crisis in Syria—why focus finite resources on nuclear cooperation? Civil nuclear issues are uniquely salient to the health of the alliance, yet there is little positive bilateral engagement on these issues. In 2008, a U.S.-Turkey 123 nuclear cooperation agreement to enable bilateral nuclear trade entered into force, but so far very little cooperation has occurred. Meanwhile, some of the more serious bilateral disputes in recent years

have involved so-called “peaceful” nuclear uses, because Ankara and Washington embrace separate and contradictory interpretations of the Nuclear Nonproliferation Treaty (NPT). Like many non-nuclear weapons states (NNWS), Turkey believes the NNWS possess an inalienable right under Article IV to nuclear fuel cycle capabilities, including enrichment and reprocessing (ENR) technologies. The United States believes the NPT grants NNWS a right to peaceful nuclear applications, but interprets this to mean fuel cycle services, not technologies. Fundamental to Turkey’s perennial defense of Iran’s “right” to uranium enrichment is the precedent it might set for Ankara’s nuclear program. Although Turkey has no near-term interest in ENR, it wishes to preserve all options. Accordingly, Ankara stood up to the United States in the Nuclear Suppliers Group (NSG) to ensure the NSG did not pass what it saw as overly restrictive technology transfer rules.² In light of these and other differences, the relative absence of positive civil nuclear engagement undermines U.S.-Turkey relations.

The U.S. government has good strategic reason to support Turkey’s nuclear energy ambitions. Doing so would benefit bilateral relations, and lend credibility to the U.S. claim that it supports the

responsible spread of nuclear energy in accordance with the NPT. Ankara has demonstrated a consistently robust commitment to nonproliferation, as a party to all relevant treaties and regimes and a member of voluntary mechanisms such as the Proliferation Security Initiative (PSI). Unlike those energy-rich countries considering nuclear power, whose motivations may seem questionable, Turkey needs nuclear power to address chronic energy insecurity; the country's "increasing rate of demand for natural gas and electricity [which nearly doubled in the past decade] is topped only by China."³ Prime Minister Erdoğan cites nuclear power as the key to transitioning Turkey from its staggering 72% energy import dependence (primarily on Iran and Russia), into a country with "... the potential to export energy."⁴

This paper therefore explores opportunities for the United States and Turkey to forge a new narrative

of cooperation rather than conflict in the civil nuclear arena. Examining Turkey's decades-long nuclear power ambitions, the paper finds that U.S.-Turkish civil nuclear cooperation has a lengthy but inconsistent history. For primarily commercial reasons, U.S. industry is not currently involved in Turkey's first nuclear power plants (NPPs). U.S. industry disinterest is mistakenly perceived by many in Turkey, however, as evidence of U.S. distrust of Ankara's program. This misperception contributes to a difficult official-level dynamic, often overshadowing bilateral cooperative programs on nuclear nonproliferation, security, and safeguards. As such, the paper first considers cooperation challenges and opportunities for the U.S. government, but concludes by examining unexploited opportunities for industry, universities and civil society organizations to lead new nuclear cooperation initiatives in support of realizing a true "model partnership."

BACKGROUND: TURKEY'S ONCE AND FUTURE NUCLEAR POWER PROGRAM

In 1955, enthusiastic about sharing “peaceful” nuclear technology, the United States concluded a 123 agreement with Turkey.⁵ Soon after, Ankara established the earliest version of the Turkish Atomic Energy Authority (TAEK), founded nuclear training centers, and imported its first U.S. research reactor. Aiming to acquire a power reactor by 1977, Turkey commenced nuclear power studies in 1965.⁶ Three tenders ran from 1977 to 1990; 1996 to 2001; and 2008 to 2009; the first two encompassed years of slipped deadlines.⁷

Five decades later, Turkey still has “plans—but no plants.”⁸ First and foremost, domestic factors explain Ankara’s repeated failure to acquire NPPs.⁹ To trace the history of the nuclear program is to encounter a string of unstable governments; military coups (in 1960, 1971, 1980, and 1997); and successive economic crises. None of this was conducive to implementation of a multi-billion dollar infrastructure project. Additionally, Turkey alienated vendors with its inconsistent commitments and the commercially untenable terms of its tenders. Beginning in the 1980s, Ankara insisted vendors fully finance nuclear plants on a “build-operate-transfer” (BOT) model, absent any sovereign guarantees, terms unacceptable to otherwise serious prospects such as Atomic Energy of Canada Limited.¹⁰

Did the United States play a role in the failures of Turkey’s nuclear energy program? Leading Turkish expert Mustafa Kibaroglu argued in 1997 that “the most significant hurdle [to Turkey’s nuclear power ambitions] has been the Western countries’ fear of a retransfer of nuclear material and technology

from Turkey to third parties.”¹¹ In addition to underplaying the central role of domestic instability in Ankara’s failed tenders, however, this analysis conflates correlation with causation. While some U.S. policymakers worried about the proliferation implications of Turkey’s close ties with Pakistan in the 1980s and 1990s, their concerns do not appear to have influenced the tenders. Even those vendors with extensive government backing had solid commercial reason to reject fully financing a reactor in a country so plagued by political and economic crises.

While the U.S. government played little or no part in Turkey’s failed tenders, it began to manifest waning enthusiasm for nuclear cooperation after India’s 1974 nuclear test. Increasingly concerned about proliferation, the United States established stricter preconditions for *all* new and renewal 123 agreements.¹² The reforms boxed the U.S. executive branch into changing the terms of the 123 agreement with Turkey when it came up for renewal in 1981. Unable to achieve consensus on the revisions, both sides allowed the 123 to lapse. Eventually, partly because Westinghouse was interested in bidding on the 1997 tender, the Clinton Administration pursued a new agreement. Having committed since 1981 to a range of nonproliferation measures, the Turkish government accepted the updated 123’s terms, and both sides signed the agreement in July 2000. Ultimately, however, the Clinton administration did not send the 123 to Congress for ratification; in light of information implicating Turkish nationals in the AQ Khan network, the U.S. intelligence community had raised concerns about Ankara’s export controls.¹³

Subsequently, Turkey improved its export controls and border security with U.S. assistance, joined PSI, and signed a bilateral nonproliferation

agreement in 2005. However, the U.S. government was slow to reconsider the 123 agreement, partly because the Turkish government refused (for domestic legal reasons) to disclose elements of the relevant nuclear trafficking prosecutions while the cases remained ongoing. Finally, in 2008 President Bush transmitted the agreement to Congress,

indicating “that the pertinent issues have been sufficiently resolved,” and the agreement entered into force after sitting before Congress for 90 days.¹⁴ Unfortunately, the eight-year delay confirmed many Turks’ longstanding perception of the United States as an obstacle rather than a partner in Turkey’s nuclear ambitions.

PUTTING THE CART BEFORE THE HORSE? STATUS AND NEEDS OF TURKEY'S CURRENT PROGRAM

In 2008, Turkey issued a new nuclear tender, but unexpectedly received only one bid. Moreover, the Russian consortium in question proposed an above-market electricity price, and subsequently revised the price downward after the tender's close. A Turkish administrative court therefore invalidated the tender, forcing the government to cancel it in 2009.¹⁵ Finally, Turkey conceptualized a winning strategy—following a successful 2010 inter-governmental agreement (IGA) with Russia, the government indicated “All NPPs will be installed by means of IGA.”¹⁶ IGAs afford the government greater flexibility than tenders, as the latter must legally meet certain fair competition criteria.

Russia's Rosatom is expected to break ground on an ~25 billion USD project at Akkuyu in 2015, pending receipt of a construction license from TAEK; the Akkuyu site itself was licensed in 1976.¹⁷ Akkuyu will be the world's first “build-own-operate” (BOO) project and will consist of four Generation III + VVER-1200 reactors, generating 4800 MWe total.¹⁸ Rosatom has also guaranteed spent fuel take-back.

Ankara announced in May 2013 that it had granted exclusive negotiating rights for its second plant at Sinop to Mitsubishi Heavy Industries-AREVA, which proposed a first-of-its-kind design, the Atmea 1.¹⁹ GDF Suez will operate the plant. Turkey asserts both Akkuyu and Sinop will be online by 2023, in conjunction with the much-anticipated centennial of the modern Turkish republic.

No U.S. firms bid on the 2008 tender or subsequently attempted to sell reactors to Turkey, baf-

fling and offending the Turkish government. In April 2013, Minister of Energy and Electricity Taner Yıldız asserted, regarding Turkey's second nuclear plant, that [U.S. officials] “...told us that the project was not feasible. It may not be feasible, but it is strategic. [Making] this strategic contribution falls upon Washington. ...Not making an offer for this project means not [giving the real meaning] to the model partnership.”²⁰

What seems to have gotten lost in translation between Minister Yıldız and his counterparts is the fact that the U.S. government has no special influence over industry's decisions. U.S. firms have found it infeasible for standard commercial reasons to supply reactors to Turkey. Specifically, U.S. industry's diminished global role, difficulty competing with state-backed competitors such as Rosatom, and negative memory of past Turkish tenders have precluded a leading role in either Akkuyu or Sinop. A U.S. nuclear industry executive observed that for those firms who bid on past tenders, “it was like pouring water on the ground,” because enormous expenditures are required to bid a project, and Ankara ultimately selected no one.²¹ Some vendors chose not to participate in the 2008 tender because during peak interest in a “nuclear renaissance,” difficult decisions had to be made concerning how many projects they could bid. U.S. vendors were also deterred by the cost of bidding Akkuyu, as expensive “major seismic studies” would have been required.²² A GE-Hitachi-led consortium intended to submit a bid, but could not logistically do so because the Turkish government refused to extend its deadline.²³ Many vendors have also found Turkey's financing prerequisites infeasible, from the fixed per kilowatt hour price to the requirement for reinvestment in a decommissioning and spent fuel storage fund.

Relative to the scale and timing of its nuclear ambitions, Ankara faces serious infrastructure and human resources deficits. Principally, Turkey lacks the regulatory capacity to evaluate critically its nuclear projects. TAEK's limited staff and inexperience with power plants is further exacerbated by the fact that neither of Turkey's two design choices is currently in operation anywhere in the world. As such, there will be significant "regulatory-operator asymmetry risk,"²⁴ wherein: (1) the companies responsible for building and operating the plants will better understand the designs than TAEK; and (2) TAEK staff likely will have to learn how to license the designs from persons affiliated with the vendor, who may have conflicts of interest. Furthermore, as a subsidiary of the Ministry of Energy and Natural Resources and the Prime Minister's office, with a chairman appointed by the Prime Minister, TAEK is not independent. TAEK also has internal conflicts of interest, being responsible for both regulation and promotion/R&D for nuclear power. A robust and independent nuclear

regulator is essential to setting and enforcing nuclear safety and security standards, yet creating one will be particularly challenging given the AK government's recent decree laws (643 and 649) that removed much of the financial and decision-making autonomy of Turkey's independent regulatory authorities.²⁵

In addition to needing increased numbers of regulatory staff and nuclear operators, Turkey has human resource deficits in safeguards, nonproliferation, and nuclear security. Many nuclear newcomers mistakenly see nuclear security as synonymous with nuclear safety, and may even use the same word to refer to both concepts.²⁶ Because Turkey has historically only engaged in nuclear research, nuclear security challenges involving fissile materials and facilities have to-date been minimal.²⁷ A more robust nuclear security infrastructure, particularly in terms of human and institutional capacity, will therefore be a vital dimension of developing the nuclear power program.

OPPORTUNITIES FOR THE MODEL PARTNERSHIP IN THE CIVIL NUCLEAR REALM

Closing the civil nuclear “trapdoor” in the “model partnership” will require simultaneous initiatives to be led by the U.S. and Turkish governments, industry, universities, and civil society. This approach will decrease the likelihood that difficulties faced by any one project will derail cooperation. In structuring efforts for maximum efficacy, three universal cautions apply.

First, new projects should complement rather than compete with existing initiatives. Ankara’s most significant partners in the nuclear area are the International Atomic Energy Agency (IAEA), the European Union (EU), and its nuclear vendors (Russia, and possibly Japan/France). The IAEA’s Technical Cooperation (TC) Programme is the capacity-building provider of first resort for nuclear newcomers. In 2013 alone, Turkey is participating in eleven TC projects.²⁸ Additionally, Ankara has requested an IAEA Integrated Nuclear Infrastructure Review Mission, planned for November 2013, and committed to completing an IAEA International Physical Protection Advisory Service follow-on mission. The EU primarily engages Turkey on nuclear safety.²⁹ Russia and the yet-to-be-determined vendor for Sinop will train Turkish personnel to work at the first two plants. Under the IGA with Russia, “600 Turkish students will be trained in the Russian National Research Nuclear University (MEPhI).”³⁰ However, gaps remain. Developing a robust regulatory, safety, and security culture will require Turkey to diversify its education and

training programs beyond its vendors. Additionally, few existing cooperative programs address issues such as nuclear security.

Secondly, new projects relying on official cooperation are likely to encounter difficulties engaging relevant Turkish participants. In the wake of Turkey’s rapid transition from military to civilian control, U.S. policymakers have struggled to identify, and exclusively focus diplomatic efforts on, the appropriate counterparts. Bridge-building is far from straightforward. Much of the Turkish bureaucracy (other than the Ministry of Foreign Affairs), is insular and “by default suspicious of international cooperation,” and in particular of “the U.S. agenda” in pursuing cooperation.³¹ Furthermore, the rigidly hierarchical nature of the bureaucracy, and Prime Minister Erdoğan’s central decision-making role, means most cooperation is only feasible through top-down initiative. “The implication for outreach activities,” according to one Turkish colleague, is that you “have to think imaginatively [beyond exclusively government-to-government cooperation] to overcome suspicion.”³²

Third, periodic bilateral disputes endanger projects relying on Turkish government participation. For example, Ankara withheld cooperation on a number of bilateral nonproliferation and nuclear security projects in the mid-2000s when the United States was slow to seek entry-into-force of the 123 agreement. Awareness of such issue linkage challenges can inform program structure, and also highlights the need for collaboration beyond the official level.

OFFICIAL-LEVEL COOPERATION

While the U.S. government is supportive of Turkey's nuclear energy ambitions, this message is blurred by some policymakers' assumptions that Ankara's program is a strategic hedge against Iran.³³ Turkish counterparts find the label of "likely nuclear proliferation domino" insulting, given their overall stellar nonproliferation credentials. When asked whether Turkey would consider nuclear weapons in response to a nuclear-armed Iran, one Turkish colleague said [having been asked multiple times by U.S. colleagues]: "Stop asking that question, it's insulting."³⁴ Another found the U.S. assumption that Turkey would go nuclear if Iran did "disturbing," since Turkey is protected by the North Atlantic Treaty Organization (NATO), and wondered: "When asked this question by a U.S. official, should I be worried about the credibility of the NATO guarantee?"³⁵ Many Turkish policymakers incorrectly attribute deficits in bilateral cooperation—such as the lack of U.S. industry involvement in the nuclear program—to U.S. proliferation fears. As a first overall step towards improving cooperation, U.S. policymakers should tone down their "proliferation domino" rhetoric.

Most bilateral nuclear cooperation to-date has occurred directly between the U.S. and Turkish governments. Export controls have been a focal point since the 1980s.³⁶ Turkey currently works with the Department of Energy's National Nuclear Security Administration (DOE NNSA) and the State Department's Export Control and Related Border Security Program (EXBS). EXBS Turkey spends approximately \$800,000 per year training Turkish law enforcement personnel in radiation interdiction and providing related equipment.³⁷ Overall, bilateral export control cooperation is effective, although the programs have experienced politically-based implementation delays and are sometimes negatively perceived in Turkey. One Turkish interlocu-

tor indicated U.S. programs to counter trafficking are suspected in Turkey of being motivated by a "U.S. desire to have a more active presence in the Black Sea area with its military activities."³⁸ Turkish interlocutors have also asserted that export control cooperation would be more effective if the United States agreed to greater intelligence sharing.³⁹ For its part, the Turkish government could considerably assuage remaining U.S./EU concerns about its export control system by advancing a 2008 draft law still before the Prime Ministry "that would tighten Turkey's export control loopholes by creating a national export control list and a centralized export control enforcement authority."⁴⁰

Because nuclear trafficking transcends borders, Turkey is well-positioned to lead regional nuclear security efforts—particularly vis-à-vis the "Turkish" states.⁴¹ Such a role would be highly compatible with the AKP's foreign policy activism. To encourage Turkish regional leadership, the United States should consider advocating the establishment of a Nuclear Security Center of Excellence in Turkey.

DOE NNSA leads most other relevant bilateral programs. While the 2005 Non-Proliferation Agreement created a framework for cooperation, bilateral engagement to-date has been limited. Most significantly, as part of global highly enriched uranium (HEU) minimization efforts, Turkey agreed to repatriation of its last 5.4 kilograms of U.S.-origin HEU in January 2010.⁴² NNSA's International Nuclear Safeguards and Engagement Program and international programs through the Office of Emergency Management are highly relevant for possible expanded cooperation. (The national laboratories support NNSA; all of their international work must be coordinated through "headquarters.") Finally, the Nuclear Regulatory Commission's Office of International Programs offers relevant collaborations, particularly through its International Regulatory Development Partnership.

OPPORTUNITIES FOR INDUSTRY

U.S. industry has not found it commercially feasible to supply reactors to Turkey, but this does not preclude other involvement in Ankara's nuclear program. For example, U.S. firms are market leaders in nuclear consulting services. Turkey is likely to require such services for both plants as well as its overall nuclear program. TAEK needs assistance reviewing construction license applications for the plants, and EUAS (Turkey's Electricity Generation Company) may need site assessment/selection consulting services. While TAEK cancelled a technical support services (TSS) tender in March 2013 for a firm to assist in the "proper handling of its first NPP licensing activity," other tenders are likely forthcoming.⁴³ In a report on regulatory capacity-building, the IAEA suggests that "augment[ing] the regulatory body's staff with consultants" would be an acceptable practice provided "they are effectively independent of the operator or its contractors."⁴⁴ One of the principal challenges will be that neither the VVER-1200 or the Atmea-1 is in operation anywhere, and anyone qualified to evaluate either design likely has a conflict-of-interest relationship with the vendor.⁴⁵ To avoid a conflict-of-interest, Turkey could hire a third-country consulting firm with expertise in pressurized water reactors; while both TAEK and the firm would face a steep learning curve, this could ensure an unbiased and thorough licensing review.

U.S. firms also produce high value-added components for pressurized water reactors. If Turkey selects the Atmea 1 for Sinop, U.S. suppliers that

produce components for Mitsubishi Nuclear Energy Systems' Advanced Pressurized Water Reactor or Westinghouse's AP1000 could conceivably be part of the supply chain. Interested firms might seek U.S. Export-Import Bank financing, as they did with the UAE/South Korea reactor components and services deal.⁴⁶

If U.S. industry does not obtain near-term services or consulting contracts in Turkey, however, there are other possibilities for mutually beneficial cooperation. Turkey and the United States might engage in peer assistance visits under the auspices of organizations such as the IAEA, the Institute of Nuclear Power Operations (INPO), or the World Association of Nuclear Operators (WANO). Peer-to-peer bilateral engagement, involving best practices sharing between a U.S. operator and a Turkish counterpart, is also worth exploring. Such engagement generally occurs between operators using the same technology—e.g., operators of the AP1000 in two different countries. However, as one U.S. nuclear industry executive put it, there would be "value for the Turks in looking at what U.S. operators look like regardless of the technology."⁴⁷ The benefits for U.S. operators are less obvious, but some might find it valuable from a benchmarking perspective to see how new build construction projects run in other countries. In this vein, an August 2012 article cites U.S. Southern Company as "following developments [in Turkey's nuclear power program] and may be interested in sharing best practices at some point."⁴⁸ Southern is building the AP1000, another Generation III + pressurized water reactor.

OPPORTUNITIES FOR UNIVERSITIES

Compared to other nuclear newcomers, Ankara has an impressive educational infrastructure. According to one estimate there are “11 universities that have significant teaching and/or research experience relevant to the development of nuclear power,” others that “appear to have some kind of relevant expertise,” and “eight national research institutions or facilities of potential relevance to a nuclear power program.”⁴⁹ Hacettepe University offers the only undergraduate nuclear engineering degree, boasting approximately 300 graduates.⁵⁰ However, Turkish Energy Minister Yıldız announced a localization goal for the third nuclear plant of 80-85% Turkish content, meaning Turkish universities will need to significantly expand relevant degree offerings.⁵¹

U.S.-Turkey university collaborations represent a promising untapped source for bilateral nuclear cooperation, as they could play an important role in Turkey’s ongoing capacity building. Everything from informal exchanges to “joint undergraduate/graduate level programs” is conceivable.⁵² As a leader in nuclear education, the United States would be a natural partner. Precedent for educational collaborations with Turkey exists; for example, MIT’s Sloan School of Management and Sabancı University established a dual degree program.⁵³

Around 12,000 Turks study in the United States each year.⁵⁴ Thanks to these student flows, strong informal links exist between U.S. and Turkish universities—at Koç University, for example, as many as “95 percent of the faculty [in all fields] received their Ph.D.’s from American universities.”⁵⁵ Dr. Şule Ergün, an Assistant Professor in Hacettepe’s Nuclear Energy Engineering Department, indicated that four out of the six faculty in her department

obtained U.S. PhDs, and a large number of Hacettepe’s graduates pursue advanced study or careers in the United States.⁵⁶ Dr. Ergün believes that more formal cooperation with U.S. universities could be mutually beneficial. Hacettepe recently began pursuing memoranda of understanding (MOUs) outside of Turkey, concluding agreements with South Korea’s Hanyang University and Korea Electric Power Corporation.⁵⁷

Across-the-board, U.S. and Turkish professors interviewed for this study indicated they would welcome increased cooperation, from hosting/sending visiting delegations; to exchanging faculty/staff/students; to collaborating on education/training/research programs through more formal mechanisms such as MOUs.⁵⁸ Additionally, as Turkish universities add curricula in fields such as nonproliferation and nuclear security, U.S. universities can be important resources. For example, Hacettepe’s Dr. Şebnem Udum, who teaches one of Turkey’s only classes on nuclear nonproliferation, indicated that she sees a need for nuclear security educational capacity-building. According to Dr. Udum, “Since nuclear security is a rather new concept for the Turkish technocrats and academics, only a few people know what nuclear security is, in part because the Turkish word ‘security’ may also mean ‘safety.’ It has been used as a technical term by TAEK, thus most people mean safety when they say nuclear security.”⁵⁹ She indicated U.S.-Turkish cooperation could be helpful in raising awareness of the need for nuclear security education.⁶⁰

U.S. universities also have incentives to pursue collaboration. MIT’s Dr. Alan Hanson asserts there is “a broad humanitarian concern that if countries do nuclear power, they must do it right; that doesn’t necessarily only mean doing nuclear power the same as the United States, but it does mean adopt-

ing high standards for safety, security, and ethics.”⁶¹ U.S. universities can learn as much from international collaborations as their partners. North Carolina State’s Dr. Ayman Hawari speculated that it “would be useful to look at how technical and engineering principles we hold true [in running a nuclear power program] might change in a different country.”⁶² Existing programs offer insights into what is possible. In collaborative coursework with North Carolina State, students at the Jordan University of Science and Technology (JUST) gain virtual experience operating NCS’s research reactor.⁶³ Texas A&M’s Nuclear Security Science and Policy Institute undertakes international outreach, and MIT runs an International Nuclear Leadership Education Program. The author’s institution, the Monterey Institute of International Studies, offers capacity-building through visiting fellows and “train-the-trainers” programs in nonproliferation and export controls.⁶⁴ While some universities of-

fer ongoing partnerships, others provide one-time training that participants use to establish programs in their home countries.

Given interest on both sides in exploring collaboration, what are likely obstacles? First, as Dr. Hawari observes, “any exercise must be supported somehow financially.”⁶⁵ Texas A&M’s Dr. Paul Nelson indicates that many state universities “have limited resources to enable international collaborations,” and as such a “significant deciding factor often is, ‘what will external entities such as the federal government fund us to do?’”⁶⁶ Finally, U.S. institutions should be aware of the need to put some types of collaboration through university-level export control compliance review, to determine whether planned activities require an export license. Many programs, however, are likely to fall under the National Security Decision Directive-189 fundamental research exemption.⁶⁷

CIVIL SOCIETY AND TRACK 2 DIPLOMACY

Civil society organizations (CSOs) can play a central role in U.S.-Turkey nuclear cooperation by facilitating Track 2 and Track 1.5 dialogues.⁶⁸ Dialogue projects build person-to-person contacts, and cultivate respect and empathy concerning differences of opinion. They are also well-suited to initial bilateral conversations on topics not yet ripe for official-level progress. For example, the 123 agreement proposes cooperation on “multilateral approaches to guaranteeing nuclear fuel supply,”⁶⁹ but Lorenz and Kidd acknowledge, “The general consensus in the decision-making corridors of Turkey seems to be that it is too early to think about multilateral nuclear approaches...”⁷⁰ This is partly because Turkey’s nuclear program has more pressing priorities. More fundamentally, Ankara is skeptical of initiatives to date in this area, and would only support approaches that are nondiscriminatory and respectful of NPT Article IV rights. As such, this is one area of the 123 well-suited to Track 2 foundational dialogues.

In seeking dialogue partners, U.S. CSOs should be aware that the development of Western-style CSOs in Turkey is largely a phenomenon of the past decade, in response to liberalization of the Associations Law in 2004.⁷¹ Prior to these reforms, the government tightly controlled CSOs’ activities. Still in their infancy, most organizations have limited resources and independence. It is also crucial to be aware of how particular organizations are viewed by the government if the goal of the dialogue is to influence the official level. For example, the Turkish Industrialists’ and Businessmen’s Association (TUSIAD) has a tumultuous relationship with the AKP.⁷² Additionally, the majority of Turkish CSOs working on nuclear energy are one-dimensional protest organizations, and therefore poorly suited to projects intended to support Turkey’s nuclear program. The Centre for Economics and Foreign Policy Studies (EDAM) is a key exception, having released major objective reports on the program.

CONCLUSIONS

Civil nuclear issues represent a significant “trapdoor” in U.S.-Turkey relations, but a wealth of opportunities exist, particularly beyond traditional government-to-government engagement, to board up that trapdoor. While the United States and Turkey have deeply held ideological differences in the civil nuclear realm, both also have compelling common interests. Neither country would find the emergence of a nuclear-armed Iran acceptable. Both view a healthy NPT regime as important, although they differ over how best to uphold Article IV of the treaty. And both the United States and Turkey would like to ensure that emerging nuclear energy programs in Turkey’s region—including Ankara’s—develop in a safe, secure, and safeguarded manner. Some may question the wisdom of initiatives that encourage Turkey’s rush to nuclear power; however, unlike most countries listed as possible “nuclear newcomers,” Ankara’s near-term acquisition of NPPs is an all but foregone conclusion. Playing a positive role in Turkey’s program is a strategically wiser path for the United States than ignoring its existence.

Important progress has been made at the official bilateral level, but reviewing government-to-government nuclear cooperation to-date exposes its limitations. Official cooperation is hindered by weak ties between the U.S. and Turkish bureaucracies, and is easily hijacked by politics. Steps can and should be taken to improve Track 1 interactions. For example, the United States should tone down its proliferation domino rhetoric and consider ways to engage Turkey as a true partner in addressing regional challenges such as nuclear

security. Additionally, both governments should support the use of CSO-led Track 1.5 and 2 dialogues as confidence-building measures, as these are often also effective mechanisms for improving official-level cooperation.

However, thinking creatively beyond exclusively government-to-government cooperation holds the key to establishing a “model partnership” on nuclear issues. Some of the most promising unexploited opportunities exist in the university, civil society, and private sectors. Successful collaboration in these areas would likely have positive spillover effects—at least in the medium to long term—on government-to-government relations. More fundamentally, such collaborations would positively contribute to the development of a safe and secure Turkish nuclear program. As such, the U.S. government may find it useful to focus outreach on support of these communities, for example by: (1) promoting U.S. nuclear services and components exports; and (2) providing robust grant-based support to U.S. university and CSO-led engagement of nuclear newcomers such as Turkey.

Ultimately, bilateral civil nuclear engagement is highly desirable because it will establish person-to-person relationships where few exist; contribute to the responsible development of nuclear power by a key U.S. ally; create new stakeholders in favor of U.S.-Turkey relations in both countries; and foster improved understanding of bilateral differences of opinion such that they are less likely to derail the alliance. As such, enhanced nuclear cooperation has the potential to meaningfully contribute to the development of a true U.S.-Turkey “model partnership.”

ENDNOTES

1. **Note on Sources:** This paper relies extensively on 2012-2013 interview research conducted by the author in Istanbul, Ankara, Washington, DC, and Vienna, as well as via phone and e-mail communication. Interviewees included current and former U.S. and Turkish government officials; U.S. and Turkish university and non-governmental organization experts; experts from relevant international organizations; and individuals affiliated with the global nuclear industry. While some interviews are cited, others were conducted on a not-for-attribution or background research basis. Some material is also drawn from an unpublished Track 2 dialogue paper: Jessica C. Varnum, "U.S.-Turkish Cooperation to Strengthen the International Nuclear Nonproliferation Regime and Other Institutions," Working Paper, "U.S.-Turkey Dialogue," October 31-November 2, 2012, Istanbul, Turkey.
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