A.Q. KHAN'S NUCLEAR WAL-MART: OUT OF BUSINESS OR UNDER NEW MANAGEMENT?

JOINT HEARING

BEFORE THE

SUBCOMMITTEE ON
THE MIDDLE EAST AND SOUTH ASIA

AND THE

SUBCOMMITTEE ON TERRORISM,
NONPROLIFERATION, AND TRADE

OF THE

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A.Q. KHAN'S NUCLEAR WAL-MART: OUT OF BUSINESS OR UNDER NEW MANAGEMENT?

WEDNESDAY, JUNE 27, 2007

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON THE MIDDLE EAST
AND SOUTH ASIA, AND
SUBCOMMITTEE ON TERRORISM,
NONPROLIFERATION, AND TRADE,
COMMITTEE ON FOREIGN AFFAIRS,
Washington, DC.

The subcommittees met, pursuant to notice, at 2:10 p.m. in room 2172, Rayburn House Office Building, Hon. Gary L. Ackerman (chairman of the Subcommittee on the Middle East and South Asia) presiding.

Mr. ACKERMAN. The committee will come to order.

Ever since the ship *BBC China* was intercepted in 2003 with centrifuge equipment bound for Libya, there have been questions about the nature and extent of A.Q. Khan's nuclear proliferation activities. Indeed, 1 year ago our committee held a hearing to examine precisely those issues and was left with more questions than answers.

One year ago we didn't know the full extent of the A.Q. Khan proliferation network. A year later, as the report from the International Institute for Strategic Studies, issued in May, points out, we still don't. One year ago we didn't know the exact number of countries, entities or individuals involved. A year later we still don't know if we have a complete list. One year ago we didn't know whether Dr. Khan or any of his associates had contact with al-Qaeda, as has been reported, or whether his associates transferred any nuclear equipment or technology to al-Qaeda or any other terrorist group. A year later we still don't know. One year ago we didn't know the extent of the involvement of figures who may still be in the Pakistani Government and military. A year later we still don't know.

And what we don't know should certainly scare us, but at the same time we should be equally concerned by what we do know. What we do know is that A.Q. Khan, the father of Pakistan's nuclear weapons program, ran an illegal international nuclear proliferation network the likes of which the world has never seen. He sold nuclear equipment and related technologies to North Korea and Iran, two-thirds of the "axis of evil," and tried to sell it to the other third. He sold the same equipment and technologies along with weapons design to Libya. And for those who think it wasn't quite a nuclear Wal-Mart because Khan didn't sell completed weap-

ons, nuclear weapons, off the shelf, perhaps a nuclear Home Depot is a better analogy. He certainly adhered to Home Depot's motto: You can do it, and we can help.

To Iran, the world's leading terror state and chief threat to peace and security in the Middle East, Khan provided centrifuges, technical designs, components and an address book of suppliers for other material, yet we don't know whether he provided Iran with the same plans for nuclear weapons that he provided to Libya. Without question Iran's nuclear program is years ahead of where it would have been without his assistance.

To North Korea Khan supplied centrifuge machines along with drawings, sketches, technical data, depleted uranium hexafluoride gas and a shopping list so that North Korea could produce additional equipment directly from foreign suppliers. In return Pakistan got missiles.

To Libya, Khan committed to supplying the entire enrichment process, soup to nuts, and for good measure he threw in the design for a nuclear weapon. In return Khan got wealthy.

What we have uncovered since 2003 is the single worst case of nuclear proliferation in the last 50 years. But what is most startling is not the scope of Khan's network that stretched, as far as we know, across 10 countries and involved at least 30 companies and middlemen, but that so few countries, companies or individuals have been held accountable. Apparently the stiffest penalty the Pakistani Government can impose on those who sell the nuclear crown jewels is house arrest. Elsewhere around the world only a handful of Khan's coconspirators faced criminal charges. Most continue unfettered by law enforcement scrutiny and probably continue their trade in nuclear-related materials.

On a government-to-government level the Bush administration has refused again and again to press the Pakistani Government for direct access to A.Q. Khan, the one man who can answer all these outstanding questions. Even though the threat of terrorists getting access to nuclear weapons is cited as the greatest threat to American national security, the President has responded by giving Pakistan a squadron of F–16s, a giant "get out of jail free" card, and has declared that the network has been shut down.

But the President's factual conclusion and willingness to believe the few answers about the Khan network that the Pakistanis grudgingly provide ignores the fact that all the incentives and missing safeguards that led the Government of Pakistan to encourage A.Q. Khan in the first place still exist. Pakistan still has a nuclear program that operates largely without either international scrutiny or voluntary transparency. And because Pakistan is not a signatory to the NPT, it will still have to produce nuclear-related materials and technology clandestinely in order to sustain that program.

The administration can believe whatever convenient fiction it likes, but all these facts lead me to believe that the Khan network is more likely to be under new management rather than truly out of business.

[The prepared statement of Mr. Ackerman follows:]

PREPARED STATEMENT OF THE HONORABLE GARY L. ACKERMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK, AND CHAIRMAN, SUBCOMMITTEE ON THE MIDDLE EAST AND SOUTH ASIA

The subcommittee will come to order. Ever since the ship "BBC China" was intercepted in 2003 with centrifuge equipment bound for Libya, there have been questions about the nature and extent of A.Q. Khan's nuclear proliferation activities. Indeed, one year ago, our committee held a hearing to examine precisely those issues and was left with more questions than answers.

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Apparently, the stiffest penalty the Pakistani government can impose on those who sell the nuclear crown jewels, is house arrest. Elsewhere around the world, only a handful of Kahn's co-conspirators face criminal charges. Most continue unfettered by law enforcement scrutiny and probably continue their trade in nuclear-related materials. On a government to government level, the Bush Administration has refused again and again to press the Pakistani government for direct access to A.Q. Khan, the one man who could answer all these outstanding questions. Even though the threat of terrorists getting access to nuclear weapons is cited as the greatest threat to American national security, the President has responded by giving Pakistan a squadron of F–16's, a giant "get out of jail free card" and has declared that the network has been "shut down."

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the Khan network is more likely to be open under new management rather than truly out of business.

And now I'd like to turn to my friend the Ranking Member, Mr. Pence.

Mr. ACKERMAN. And now I would like to turn to my good friend, Mr. Royce, for any opening statement that he might care to make.

Mr. ROYCE. Thank you, Chairman Ackerman. I appreciate you holding this hearing today.

Last year the Terrorism and Nonproliferation Subcommittee that I chaired held a hearing about the A.Q. Khan network on proliferation. We held it shortly after a top Pakistani official had declared the Khan case closed. Well, it isn't. It wasn't closed then, it is not closed today. One of my hopes in this hearing today is that we develop ideas for seeing that the A.Q. Khan case is still not open next year.

The case is not closed because there is more to learn. The Khan network has done incalculable damage to international security. Yet there remain unanswered questions about the enrichment technology that it provided to Iran. That is something we want to know. Given Iran's threatening course and its destructive potential, we must have all the information possible about its technology. Pakistan owes the world greater cooperation.

It is not clear that the Khan network has been rolled up. While Khan was at its head, other network figures outside of Pakistan acted with autonomy. Pakistan nevertheless bears especially close watching as it will continue with attempts to acquire sensitive technology for its own nuclear program. This program is very troubling given radical sympathies that exist within some elements of the Pakistani population.

This IISS report we will hear about today will document North Korea's extensive procurement activities which centered on the Khan network but includes China. This report suggests that this regime can draw upon a large and experienced transnational criminal network for nuclear procurement. Indeed, the Treasury Department's investigation of Banco Delta Asia "revealed additional illicit financial conduct . . . including activity related to entities facilitating weapons of mass destruction proliferation." Again, this is the Treasury Department's investigation of Banco Delta Asia. They say it "revealed additional illicit financial conduct . . . including activity related to entities facilitating weapons of mass destruction proliferation."

The administration ought to be targeting this network while it seeks to negotiate North Korea's abandonment of its nuclear weapons program. That our negotiating team bent over backward to return $25 million that North Korea had obtained through this network is not a good sign that it will be attacked—that this problem is going to be thoroughly vetted and investigated.

We will hear today recommendations for combating the proliferation of sensitive nuclear technology. Governments must tighten export controls, for sure. We need improved international cooperation, but we better realize that the forces of proliferation are very powerful, the challenge of managing dual-use technology, improved communications and ever more cross-border activity. Taking advantage of these changes, Khan even outsourced the manufacture of enrichment components. This shouldn't surprise us. History has shown

that every technology proliferates. I mention this to stress the importance of making intense nonproliferation efforts, and also to plan for failure, which we should be doing.

Of course, A.Q. Khan got his start by stealing technology from Urenco, a consortium in the Netherlands. The IISS report notes that "many Pakistani scientists and engineers gained crucial knowledge about the enrichment process through education, training and internships in European firms (sometimes under the aegis of UNESCO programs there)."

Moving forward, it is important that international nuclear energy programs are well safeguarded. That is why I offered an amendment to the nuclear fuel bank bill our committee recently passed to help ensure that this concept is part of the proliferation solution, not the problem. Remember: The IAEA, while useful, is charged with promoting nuclear energy use, and the line between the peaceful and military use is a fine one, which many countries are working to erase. We need to be extra cautious in firewalling enrichment technology so new cases like Khan's do not arise.

Thank you again, Mr. Chairman, for holding this hearing.

Mr. ACKERMAN. Thank you.

Mr. Scott.

Mr. SCOTT. Thank you, Mr. Chairman. And I certainly appreciate you, Mr. Chairman, and Mr. Sherman for joining together to hold this hearing. It is a very vital issue.

Illegal networks are selling nuclear technologies to the highest bidder on the black market. It is an extraordinary problem, and it is posing a great threat, especially with Pakistan building a nuclear reactor that could very well be used to produce weapons-grade plutonium.

There are differing views as to the level of complicity of the Government of Pakistan in Khan's activities. Some say he was a front for the government's illicit procurement of nuclear-related materials, while others say he was just operating on his own purely for profit. And there is a view that, in fact, Khan's network was a smokescreen to cover the weapons-related activities of the Pakistan Atomic Energy Commission. And both former U.S. Ambassador to Pakistan Robert Oakley and former Assistant Secretary of Defense Harry Rowen assert that Pakistani General Mirza Aslam Beg threatened to provide nuclear technology to Iran if Washington cut off arms sale.

This is an extraordinary issue, and the chairman asked the question at the time of the hearing about the state of the black market for nuclear secrets. And, of course, without the direct access to A.Q. Khan that we require, and without international inspection of Pakistan's nuclear facilities, we may never know the true extent of Khan's deception and his thievery. And as such it is impossible to know the lasting effects of his network.

I will suggest, however, that what is most likely is that there is not a new store manager. Rather, Khan and his cronies were so successful in selling their stolen technology secrets throughout the world that it has almost become public domain, or at the very least available to whoever has the money.

The Middle East appears to becoming a hot spot for possible nuclear activity, and I welcome the panel's thoughts on how we can

detect and subsequently defeat such a diffuse network of information selling.

And I yield back the balance of my time, Mr. Chairman.

Mr. ACKERMAN. Distinguished Ranking Member Pence.

Mr. PENCE. Thank you, Chairman, and I want to thank you and the other distinguished chairman for calling this important joint hearing.

The question of nuclear proliferation has confronted policymakers for decades, and prominently since the nonproliferation treaty of 1968. And yet proliferation cannot be considered in a vacuum. I expect it won't be today.

The mere possession of nuclear technology is not a cause for alarm. Great Britain possesses nuclear weapons and poses exactly a zero threat to the United States. Conversely, Iran's nuclear status is unclear, but it is universally acknowledged as a great threat to our country.

President Bush's formulation, I believe, is exactly right. We cannot permit, using his words, the world's worst leaders to develop the world's worst weapons. Mr. Chairman, in that end I believe the administration deserves its share of credit for advancing our national security goals through our overall counterproliferation effort.

The administration successfully convinced the Libyans in 2003 to give up their WMD program. The administration recently has even gotten a commitment to allow the United States military to verify whether North Korea shut down its nuclear reactor, something that obviously bears extremely close scrutiny. Ms. Curtis' statement correctly credits former Deputy Secretary Richard Armitage in heading off possible nuclear war in 2001 after a huge clash related to Kashmir. These are all reasons for Americans to be encouraged, and represent good news.

In the case of Pakistan, I believe in particular we have to tread carefully with this crucial ally in the war on terror. The goals of counterproliferation and counterterrorism should not be in conflict. I am somewhat reassured by Ms. Curtis' statement which says that the prospect of Islamists overthrowing the current regime is relatively low. And while I have more than a few quarrels with the current regime and the politics in Islamabad, I am encouraged to know that an ally in the war on terror does not represent the kind of destabilization of a nuclear power that would create a much more serious policy challenge for the United States. And frankly, as bad as the story of A.Q. Khan is, I am mildly mollified by Ms. Curtis when she cites former CIA Director George Tenet's recent memoirs stating that A.Q. Khan rebuffed several attempts by bin Laden apparently to share nuclear technology with al-Qaeda. Although Khan's reasons are mysterious, and we have no apparent access to it, this gives me some modicum of relief.

Mr. Chairman, our relations with Pakistan are complex and important, and yet we must do everything in our power to curb any of its scientists spreading nuclear technology abroad.

With that, I welcome the panel. I offer a special welcome of Hoosier greetings to Ms. Curtis, who not only works for The Heritage Foundation, but also is a native of Fort Wayne, Indiana, part of which I represent here in Washington, DC; and even more to the point, Mr. Chairman, is a graduate of the Indiana University. We

need more Hoosiers represented before this committee in the future.

Mr. ACKERMAN. We will see what we can do about that.

Mr. Wu.

Mr. WU. Thank you, Mr. Chairman.

I can think of no more important issues that we face today than the conjunction of nuclear proliferation with states and nonstate entities that are willing to use it. I look forward to the testimony of all three of our witnesses. Thank you.

Mr. ACKERMAN. Thank you.

Mr. Manzullo.

Mr. MANZULLO. Thank you, Mr. Chairman, for calling this important hearing on nuclear proliferation in the A.Q. Khan network.

It is impossible to discuss the Khan network without talking about the importance of robust multinational export control policies and their enforcement. The Khan network was able to flourish precisely because one of the largest hubs in the world was located in a country that has no export control policies. Additionally, the global multilateral controls on sensitive goods and technologies were not adequately restricting the flow of sensitive goods and technologies to individuals and countries of concern. This is because many of the multilateral regimes are nothing more than list harmonization and do not adequately control the flow of sensitive technologies.

Unfortunately, the focus of the U.S. has been to tighten our own export controls unilaterally rather than encouraging our allies to develop more robust controls. This has led to an environment that has done less to halt proliferation and more to disadvantage U.S. firms in the international marketplace because they face restrictions that their foreign competitors do not face.

I believe that good export control policies are vital to U.S. national foreign policy and economic interests. That is why I formed a working group with my colleagues, Joe Crowley and Earl Blumenauer, to help educate Members of Congress and their staff on the export—on the importance of good export controls. We are currently discussing ways to strengthen multilateral controls with our closest allies.

The problem, Mr. Chairman—if I could take a second here, this is the problem we have in the United States. On my right is a portable cable, ITAR controlled. On the left is a portable cable, CCL controlled. The one on the right is 1 inch shorter than the one on the left. But this is how confusing export controls are. They make it extremely difficult for the U.S. to be competitive in the market when other nations are selling the very same items that we are that have a dual-use capacity.

But this is where we are, this is the confusion that is going on in this country. That is why we formed this committee, a working group, to strengthen our export controls, at the same time to make it a lot easier to export those items that are nonsensitive.

After making this stir, I have to leave, I have another meeting, but I look forward to reading the testimony. And thank you for calling the hearing.

Mr. ACKERMAN. Thank you.

Mr. Crowley.

Mr. CROWLEY. Thank you, Mr. Chairman.

It is interesting I am responding after my name was used by my good friend from Illinois in relation to the working group we just formed. The subject matter we are going to discuss today probably would not have been the time line I would have chosen to allude to that, but I thank the gentleman for his work as well. I think we are going to do some good things together.

But I have always been fascinated by the A.Q. Khan scandal, and I hope that this hearing today will help to shed additional light on the extent of the damage that was done.

I am also recognizing that Pakistan, when put to the test, I guess you can say, they chose the right side. But I think we also need to keep in mind, although will not be, I am sure, discussed today in great detail, but they were supporters of the Taliban; prior to President Bush demanding that they pick a side, that there was some incredible damage that was done through this network. Although I am not so sure Wal-Mart would like to have their name associated with what has happened here, I would offer that substantial damage was done despite the fact that they now are allies in the war against terror.

And I think something else that probably will not be discussed in great detail today here is the stability of that country itself. What happens—if something were to go terribly wrong in that country, what happens to the nuclear weapons within that country and the other accoutrements that are within that country as well?

So with that, Mr. Chairman, I, too, look forward to hearing the testimony and yield back the balance of my time.

Mr. ACKERMAN. Thank you very much.

And now the co-hosting chairman of today's hearing, the chairman of the Subcommittee on Terrorism, Nonproliferation, and Trade, Mr. Sherman.

Mr. SHERMAN. Thank you, Mr. Ackerman, for holding these hearings and for coming up with an inventive title. Just a year ago the predecessor of our subcommittee, under then Chairman Ed Royce, held hearings on nuclear trafficking and the damage it had done to American security and the international proliferation regime. But this is certainly a topic worth revisiting.

We talk about A.Q. Khan as if he was an independent contractor. He was an integral part of a program financed and controlled by the truly controlling elements of the Pakistani Government.

How have we responded to the outrage of A.Q. Khan? The President has decided not only to send them F–16s, but to trample on the prerogatives of this committee and Congress in general in order to make sure they got them. The issue now is what technologies we will put on those F–16s, and we ought to look very carefully at whatever technology we put on those F–16s because we know the Chinese will be looking very carefully at that technology just as soon as those planes are delivered.

I would think that we would put the pressure on Pakistan to do what it can do. A.Q. Khan seems to still be a national hero in Pakistan, and I don't think that they are going to deliver him into our custody. They may not even politically be able to allow American interrogation. But one way or another Pakistan has got to tell us the whole story and names, places and dates of the European and

American suppliers. And no one can tell me there are going to be riots in Karachi if some Danish company or some California company is held to account. A.Q. Khan may be a hero, but I doubt there will be riots in Pakistan if we start enforcing Western law on Western companies.

Let me take issue with the idea that this administration's proliferation policy has been successful. The Libya example occurred because of the Iran-Libya Sanctions Act, an act which the President now refuses to enforce with regard to Iran. The Pyongyang reactor is going to be shut down, but before you scream hallelujah, realize that it is on its last legs anyway. They are closing down a reactor that they would have to close down for technical reasons anyway. Iran centrifuges continue to turn. And I know that I may be sounding harsh and partisan. I am only sounding harsh because I said these same words or similar words about the Clinton administration's policy where we have constantly put our unwillingness to ruffle any feathers, particularly those of international corporations, in order to secure our nonproliferation efforts.

We need to look at dual-use items, and what we see is that many of the items used by A.Q. Khan were delivered within the letter of the law, if not quite its spirit. As Mr. Fitzpatrick's testimony will say, the current system relies on national discretion, discordant standards and a gentleman's agreement that is nonbinding, nonuniversal and used as discriminatory by less developed countries.

We have to elevate our concerns about nonproliferation, maybe make concessions on issues of lesser importance to us and secure far stricter standards on these dual-use items, and, as Mr. Manzullo points out, perhaps standards that make a little sense. We need better intelligence. And problems such as who is responsible for indemnifying shippers in the case of interdiction need to be resolved, but they linger on, because this matter is not given the level of priority that it should.

On the plus side, among the other measures to control the spread of nuclear material, H.R. 1, the Speaker's 9/11 Implementation Act, includes a provision that will direct the President to sanction any state or entity that provides enrichment or reprocessing technologies or other technologies relevant to nuclear weapons to countries that do not already possess the technology or which do not subject them to safeguards. This bill contains a provision that foreign assistance should be provided only to countries that assist the prevention of nuclear proliferation. And it will be interesting to see how that provision, if adopted into law, will apply to Pakistan. And it also contains a provision that prohibits weapon sales to states that host proliferation networks without taking significant action against them. Again, how that would be applied by this administration to Pakistan is questionable.

We need also to stop the proliferators, as well as the proliferation networks, in the area of North Korea. Our success is to get them to close that which is defunct anyway.

When it comes to Iran, our level of effort and priority is best illustrated by the testimony before the Financial Services Committee of the Secretary of the Treasury just a few days ago where he said that in order to save Wolfowitz's job, he made lots of phone calls and worked real hard. But in order to prevent the World Bank

from making loans to Iran, he had undertaken no personal activity, hadn't made a personal phone call to any of his compatriots around the world.

Needless to say, the President's failure to apply the Iran Sanctions Act to a single company is a criminal, in every sense of that term, violation of statutes which he himself has signed a reauthorization in the law.

I have a lot more to say, but I think I have taken enough of the subcommittee's time. I yield back.

Mr. ACKERMAN. Thank you very much.

If there are no other requests by members for opening statements, we will turn to our very distinguished panel of witnesses.

Mr. Mark Fitzpatrick is a senior fellow for nonproliferation at the London-based International Institute for Strategic Studies and is an editor of the institute's report, "Nuclear Black Markets: Pakistan, A.Q. Khan and the rise of proliferation networks—A net assessment," which was released in May. Before joining IISS, Mr. Fitzpatrick enjoyed a distinguished 26-year career at the State Department where he focused on nonproliferation issues, including as Acting Deputy Assistant Secretary for Nonproliferation.

Mr. David Albright is president of the Institute for Science and International Security. Mr. Albright has published widely on nuclear weapons programs throughout the world; during the mid-1990s worked closely with the IAEA analyzing Iraqi documents and past procurement activities. Mr. Albright has served on a wide variety of government advisory panels, and prior to founding the ISIS, he was a staff scientist at the Federation of American Scientists and a member of the research staff of Princeton University's Center for Energy and Environmental Studies.

Ms. Lisa Curtis is a senior research fellow on South Asia at The Heritage Foundation. Before joining Heritage she worked on the Senate Foreign Relations Committee as a professional staff member handling the South Asia portfolio for Senator Lugar, the former chairman of the committee. From 2001 to 2003, she served as senior advisor at the State Department in the South Asia Bureau where she advised the Assistant Secretary for South Asia on India-Pakistan Relations. Welcome back to you, Ms. Curtis.

Without objection, the complete written statements of our three witnesses today will be made part of the permanent record. And I would ask if you would summarize your statements. And we will begin with Mr. Fitzpatrick.

STATEMENT OF MR. MARK FITZPATRICK, SENIOR FELLOW FOR NON-PROLIFERATION, INTERNATIONAL INSTITUTE FOR STRATEGIC STUDIES

Mr. FITZPATRICK. Thank you, Mr. Chairman. It is an honor to testify before this joint hearing of the two subcommittees and to be asked to present the findings of the strategic dossier published last month by the International Institute for Strategic Studies: "Nuclear Black Markets: Pakistan, A.Q. Khan, and the Rise of Proliferation Networks—A Net Assessment." I am especially honored, Mr. Chairman, that you and other members of the two subcommittees are already familiar with our dossier.

Our report addressed the nation and the network that sold nuclear weapons technology to Iran, North Korea and Libya and offered it to Iraq and possibly to other nations. We also assessed more broadly the problem of black market nuclear procurements by up to 12 countries over the past several decades.

In our study the term "nuclear black market" denotes trade in nuclear-related expertise, technologies, components or material that is being pursued for nonpeaceful purposes and most often by covert or secretive means. Often the trade is not explicitly illegal, but exploits loopholes in national export regulations. Black in this case often means shades of gray.

The A.Q. Khan networks sales had far-reaching consequences. His transfer of enrichment technology to North Korea precipitated the breakdown of the U.S.-North Korea Agreed Framework, which in turn led to Pyongyang's resumption of its plutonium program and last October's nuclear test explosion. Khan's nuclear assistance to Iran allowed it to skip many steps in the development of enrichment technologies that appeared to be intended for weapons purposes, causing severe strain on the global nonproliferation regime and sparking an international crisis that potentially could escalate to armed conflict. If Colonel Gadhafi had not decided to give up his nuclear weapons program in 2003, Khan's assistance to Libya possibly could have resulted in it possessing an atomic bomb today, a development that likely would have set one or more of Libya's neighbors on a similar path. More generally, by freely selling enrichment equipment and by putting the designs on computer disks, Khan significantly lowered the technical barriers to nuclear weapons development globally.

Are concerned nations doing all they can to stop clandestine acquisition of nuclear technologies and materials for weapons purposes? The answer unfortunately is no. The nuclear black market has been constrained, but not eradicated. The continuing strong demand for nuclear technology for weapons purposes reinforces a need for vigilance. Iran in particular has built a procurement structure that is equivalent to, if not larger, than A.Q. Khan's global network. And Iran's quest for nuclear weapons capabilities may prompt other states in turn to acquire their own nuclear deterrent.

Little is known in open sources about any actual effort by terrorist organizations to acquire nuclear weapons, although al-Qaeda statements of intent are reason enough for concern. Today's nuclear black market suppliers are less integrated than Khan's one-stop shopping.

In seeking to preempt proliferation trends, however, concerned governments should anticipate new ways in which black market suppliers may integrate their services. Future proliferation efforts may take on various forms of quasi-state involvement expanding in new ways the manner in which Khan's actions blurred the lines distinguishing private criminality from state-authorized activity. Future nuclear black market sources could conceivably emerge, for example, from Russia's criminal networks, from North Korea's corrupt state apparatus, from Pakistan's jihadi sympathizers and from Iran's Revolutionary Guards.

Many governments have taken additional steps to stop proliferation involving nonstate actors. The British and American intel-

ligence agencies that put the A.Q. Khan network out of business deserve a great deal of credit. Indeed although only a handful of the individuals who are known to have worked with Khan are in prison, investigators express confidence that none remain involved in the proliferation business today.

Questions remain, however, about the more shadowy recesses of the network. At least some of Khan's associates appeared to have escaped law enforcement attention and could, after a period of lying low, resume their black market business.

In addition, the international framework of export controls still contains serious gaps that could be exploited by a network similar to that of A.Q. Khan. Many countries still lack laws and regulations governing trade and nuclear-related goods and technologies. An even larger number of countries have yet to implement controls. And only a handful of countries are actually enforcing controls with thorough investigations and strict penalties.

Up to now the history of the nonproliferation regime has been a game of catch-up. Regulators belatedly tighten controls after learning the lessons of past evasion, but determined proliferators find new ways to keep one step ahead. Concerned governments acting individually and collectively have undertaken further important steps to close the loopholes. The Proliferation Security Initiative, enhanced nuclear supplier group guidelines, U.N. Security Council Resolution 1540, the IAEA industry outreach program and other multilateral efforts have created a transnational enforcement network that could in theory be able to outmatch the transnational proliferators; however, many of these tools have yet to fulfill their promise. Unless further reforms are made and then rigorously enforced, it seems likely that the black market pattern will repeat itself.

To stop nuclear black markets, the United States and other concerned governments may wish to consider further action in four areas which I summarize in greater detail in my prepared testimony.

The first action area includes ways to tighten export controls, including by vigorously enforcing Security Council Resolution 1540, which required all states to enact and implement export controls, and for the first time made states responsible for what leaves their borders. In the 3 years since the resolution was adopted, however, follow-through has been feeble to the point of negligence.

Nations should also consider harmonizing penal clauses in a manner that can serve as an effective deterrent. The relative lightness of the criminal sentences imposed so far on Khan's associates, and the absence of any prosecutions in Pakistan, mean that there is an insufficient deterrent to future black market activity. Selling nuclear weapons technology is not seen as a serious crime in most countries.

A second action area is to take steps to dry up the supply of nuclear materials worldwide.

A third area where action is needed is to enhance information collection and sharing. Effective intelligence is critical to government efforts to ascertain intended end users and expose proliferation front companies and brokers. But intelligence collection is not the only source of tip-offs of clandestine nuclear procurement at-

tempts. The IAEA's outreach program to industries involved in sensitive dual-use products is a promising way of acquiring information provided voluntarily by those most likely to come across it first. IAEA analysis of seemingly unrelated and innocent-looking faxes from well-disguised front companies in various countries can connect the dots in order to enable the detection of clandestine nuclear activity.

Concerned nations should also consider sharing export approvals and denials with the IAEA.

In the fourth area, if all nonproliferation controls fail, the ability of concerned states to take coordinated interdiction action provides a final opportunity to stop illicit transfers. The Proliferation Security Initiative has helped participating states improve and coordinate their interdiction capabilities and holds promise both in its operational effectiveness and in its deterrent impact; however, the ad hoc nature of the initiative and its limited applicability could erode its promise over time.

These various steps will not quell the demand for nuclear weapons. Supply-side controls can minimize illicit exports, however, by raising the costs and risks to would-be suppliers to the point where most will not find it worthwhile.

Strict controls on the black market are essential if concerned states are to prevent the breakdown of the nonproliferation regime.

Thank you Mr. Chairman.

Mr. ACKERMAN. Thank you.

[The prepared statement of Mr. Fitzpatrick follows:]

PREPARED STATEMENT OF MR. MARK FITZPATRICK, SENIOR FELLOW FOR NON-PROLIFERATION, INTERNATIONAL INSTITUTE FOR STRATEGIC STUDIES

It is an honor to testify before this joint hearing of the two subcommittees on a matter of vital security interest for the United States and the entire world. I am particularly honored to be asked to present the findings of the strategic dossier published last month by the London-based International Institute for Strategic Studies, for which I was the editor: *Nuclear Black Markets: Pakistan, A.Q. Khan and the rise of proliferation networks—A net assessment*.

This report retains the proliferation focus, analytical rigor and methodology of three previous IISS strategic dossiers assessing the strategic weapons programmes of Iraq, North Korea and most recently Iran. As the subject of our latest dossier, we addressed the nation and the network that offered nuclear weapons technology to these three countries, plus Libya and possibly other countries. We also assessed more broadly the problem of nuclear black market networks.

In our study, the term "nuclear black market" denotes the trade in nuclear-related expertise, technologies, components or material that is being pursued for non-peaceful purposes and most often by covert or secretive means. Often the trade is not explicitly illegal, but exploits loopholes in national export regulations. "Black," in this case, often means shades of grey.

At least a dozen countries have secretly sought to procure technology in their efforts to develop nuclear weapons. In addition to Pakistan's programme, we examined some of the black market procurement attempts made over the course of several decades by Iraq, Iran, North Korea, Libya, Israel, India, South Africa, Brazil, Argentina and Egypt.

The A.Q. Khan network was not a nuclear weapons "Wal-Mart," since—so far as is known today—its contributions to proliferation were limited to uranium-enrichment technologies and associated weapon designs. This is not to minimize the deleterious impact of Khan's nuclear sales. His transfer of enrichment technology to North Korea precipitated the breakdown of the US-North Korea Agreed Framework and Pyongyang's resumption of its plutonium programme and last October's nuclear test explosion, with as-yet unknown ripple effects. Khan's covert nuclear assistance to Iran allowed it to skip many steps in the development of uranium enrichment technologies that appear to be intended for nuclear weapons purposes, causing severe strain on the global non-proliferation regime and an international crisis that

potentially could escalate to armed conflict. If Col. Gadhafi had not decided to give up his nuclear weapons program in 2003, Khan's assistance to Libya possibly could have resulted in it possessing an atomic bomb today, a development that likely would have set one or more of its neighbours on a similar path. More generally, by freely selling enrichment equipment and by putting the designs on computer disks, Khan significantly lowered the technical barriers to nuclear weapons development.

Are concerned countries and international organizations doing all they can to stop such clandestine acquisition of nuclear technologies and materials for weapons purposes? The answer, unfortunately, is "no." The nuclear black market has been constrained but not eradicated.

The continuing strong demand for nuclear technology for weapons purposes reinforces the need for vigilance. Tehran, in particular, has built a procurement structure that is equivalent to, if not larger than A. Q. Khan's global network, and Iran's quest for a nuclear weapons capability may prompt other states to acquire their own nuclear deterrent in turn. Little is known in open sources about any actual efforts by terrorist organizations to acquire nuclear weapons, although Al Qaeda statements of intent are reason enough for concern.

Today's black market suppliers are far less integrated than Khan's "one-stop shopping." His enterprise was unique in its ability to provide nearly the entire array of materials and services required to produce highly enriched uranium. The supply side of the post-Khan market is largely comprised of individuals selling selected dual-use goods. In seeking to pre-empt proliferation trends of the future, however, concerned governments should anticipate new ways in which black market suppliers may integrate their services. Future proliferation efforts may take on various forms of quasi-state involvement, expanding in new ways the manner in which Khan's actions blurred the lines distinguishing private criminality from state-authorized activity. Future nuclear black market sources could conceivably emerge, for example, from Russia's criminal networks, North Korea's corrupt state apparatus, Pakistan's jihadi sympathizers and/or Iran's Revolutionary Guards.

Many governments have taken additional steps to stop proliferation involving non-state actors. Much credit is due to the British and American intelligence agencies that put the A.Q. Khan network out of business. Indeed, although only a handful of the some 40 individuals publicly identified as having worked with Khan are in prison, investigators express confidence that none remain involved in the proliferation business. Investigators are less certain, however, about the more shadowy recesses of the network. At least some of Khan's associates appear to have escaped law-enforcement attention and could, after a period of lying low, resume their black market business.

In addition, the international framework of export controls still contains serious gaps that could be exploited by a network similar to that of A.Q. Khan. Firstly, many countries still lack laws and regulations governing trade in nuclear-related goods and technologies. Secondly, an even larger number of countries have yet to implement controls. Thirdly, only a handful of countries are actually enforcing controls with thorough investigations and strict penalties. As a result, exporters of dual-use items may calculate that the risk of being caught for exporting controlled goods without a license is minimal.

Up to now, the history of the non-proliferation regime has been a game of catch-up: regulators belatedly tighten controls after learning the lessons from previous rounds of proliferation, but states intent on acquiring strategic weapons capabilities find new ways to keep one step ahead. Concerned governments, acting individually and collectively, have undertaken further important steps to close the loopholes. The Proliferation Security Initiative (PSI), enhanced NSG guidelines, UN Security Council Resolution 1540, an IAEA industry outreach programme and other multilateral efforts all serve to create a transnational enforcement network that should, in theory, be able to outmatch the transnational black market networks. However, many of these tools have yet to fulfill their promise. Unless further reforms are made, and then rigorously enforced, it seems likely that this pattern will repeat itself.

To stop nuclear black markets, the United States and other concerned governments may wish to consider further action in four areas:

I. TIGHTEN EXPORT CONTROLS

The ideal export control regime would be treaty-based, harmonized and binding on all governments. The current system relies on national discretion, discordant standards and a gentlemen's agreement that is non-binding, non-universal and viewed as discriminatory by less developed countries. Non-proliferation values are not universally shared, and export controls often collide with natural incentives to gain competitive trade advantage. The Khan network established its workshops and

transshipment centers in countries with weak export control laws. On the assumption that export controls are only as good as their weakest link, they should be applied universally in states that have supply capabilities or serve as transit points.

Vigorously implement UNSCR 1540

The UN Security Council made a good start in addressing the nuclear black market problem in April 2004 by adopting Resolution 1540, which required all countries to enact and implement export controls. The resolution for the first time made states responsible for what leaves their borders. In the three years since the resolution, however, follow-through has been feeble, to the point of negligence. All states should be held to the mandate of the resolution to establish a legal framework to govern trade in nuclear-related goods and technologies. The United States and Russia provided leadership in bringing the new norm into being, and the United States for the past ten years has been helping states develop export control systems, but neither state has made implementation a high priority. Energetic diplomacy at senior levels is needed to persuade the UN member states that are insufficiently motivated to establish effective controls, combined with real penalties that would constitute a deterrent.

States that were implicated in the Khan network bear a particular responsibility to implement the resolution. It is to their commercial benefit to do so. Primary suppliers have reason not to allow unfettered trade with secondary suppliers and transshipment hubs that do not have effective export control systems.

A major defect of UNSCR 1540 is the lack of verification measures in the resolution. In the nuclear field, it would be logical to assign the verification task to the IAEA, which has both the personnel and the knowledge base about the nuclear infrastructure and local conditions. Because the IAEA has no mandate to verify export controls, the Security Council would have to explicitly designate it for this responsibility

Standardize controls

The drafters of UNSCR 1540 decided it was politically impossible to try to establish universal standards for export controls, including what should be on the control lists and under what circumstances the controls should apply. Short of amending the resolution, states could seek to harmonize standards by promoting best practices. This could be helped by the exposition of a model law. Controls on transit and transshipment are lacking even in most developed countries, including Japan and the European Union. Too many countries specifically exempt items in transit or in free trade zones from catch-all controls. Similarly, too few countries control the so-called "intangible trade" in these sensitive items, or related financial or transportation services. These vulnerabilities should be addressed.

Impose penalties that deter

States should also consider harmonizing penal clauses in a manner that can serve as an effective deterrent. The relative lightness of the criminal sentences imposed so far on Khan's associates and the absence of any prosecutions in Pakistan mean that there is an insufficient deterrent to future black market activity. The difficulty of applying intelligence-derived information to the evidentiary standards of the courtroom and other legal complications are one explanation for this failure. Overall, however, violations of export controls are not seen as serious crimes in most countries. In some of the countries Khan exploited, no laws were even broken by the network's activities.

Make the Additional Protocol a condition of supply

The Additional Protocol is one of the most important non-proliferation tools but is not yet a standard requirement for the signatory states of the Non-Proliferation Treaty. The best-known feature of the Additional Protocol is the greater access it gives IAEA inspectors to nuclear-related facilities. Another key feature is the additional reporting requirements of the protocol. Supplier states must report exports of trigger-list items to the IAEA, and recipient states must confirm this information upon IAEA request. Short of making such reporting mandatory under UNSCR 1540, the best way to universalize export controls and to compel transparency in recipient states may be to make the Additional Protocol a universal norm. The NSG can promote universality by making the Additional Protocol a condition of supply of nuclear technology for civilian use. Momentum has been growing within the NSG to adopt such a rule, to the point that today only Brazil stands opposed, due to its own reluctance to accept the Additional Protocol.

II. DRY UP THE SUPPLY OF NUCLEAR MATERIALS

Illicit trafficking in nuclear materials appears to be largely a supply-side problem, the solutions to which are clear, but not simple or inexpensive. Sensible recommendations include:

- Completing work to secure all weapons-usable nuclear material;
- Ceasing production of highly enriched uranium and reprocessed plutonium;
- Guaranteeing fuel-cycle services to states that forgo uranium enrichment and plutonium reprocessing;
- Converting all nuclear reactors to run on fuel that is not weapons usable; and
- Eliminating excess stocks of fissile material.

III. ENHANCE INFORMATION COLLECTION AND SHARING

Effective intelligence is critical to government efforts to ascertain intended end users and expose procurement front companies and brokers. Law enforcement is then critical to stopping proliferation. Closing down networks will also require intelligence sharing among concerned states regarding the countries, groups and front companies seeking sensitive dual-use equipment and the strategies and tactics they are employing. Given the ease with which proliferators can cross borders, intelligence coordination should be similarly unconstrained by national frontiers. Although concerns about revealing sources and methods makes the United States and other states cautious about sharing intelligence-derived information, smaller countries on the front lines of proliferation-prone regions generally lack the resources to collect timely intelligence on their own.

Expand IAEA industry-outreach programme

Government intelligence collection is not the only source of tip-offs of clandestine nuclear procurement attempts. The IAEA's outreach programme to selected industries involved in sensitive dual-use products is a promising way of acquiring information provided voluntarily by those most likely to come across it first. IAEA analysis of seemingly unrelated and innocent-looking faxes from well-disguised front companies in various countries can connect the dots in order to enable detection of clandestine nuclear activity. If the initial results fulfill that promise, the IAEA should consider expanding the industry outreach programme to all countries with firms likely to be approached by front companies acting on behalf of proliferators. Some governments are reluctant to allow the IAEA to establish such relationships with their industries because the IAEA, on grounds of confidentiality, does not in turn share information that would aid the governments' export license decisions. The IAEA should consider ways of coordinating with government agencies that have their own industry outreach programmes, to help each other better assess potential proliferation problems.

Share export approvals and denials with IAEA

When NSG members deny nuclear-related license applications on non-proliferation grounds, they routinely notify other NSG members, who are obliged, under the NSG no-undercut rule, not to export the item to the same buyer themselves. Sharing these denial notifications with the IAEA as well would impose no additional burden and would significantly assist the agency's mission to analyze procurement patterns and state capabilities as a means of early detection of undeclared nuclear activities. Sharing such information is a national decision, but few states will agree to provide it on a regular basis unless the NSG collectively makes this a guideline for all members.

NSG members should also consider exchanging information with each other and with the IAEA on "informal denials" and export approvals for key dual-use items. Sharing such information could be based on the same principles of no-undercut and commercial confidentiality that govern the denial notice system—i.e. information exchanged about denials will not be used for commercial purposes against firms in the country supplying the information. For such a system to be sufficiently worthwhile to overcome concerns about economic espionage, the volume of data generated would have to be effectively managed. NSG members could establish a centralized database for information sharing or the IAEA could be empowered with the responsibility and resources to analyze the data flow.

IV. REINFORCE INTERDICTION NETWORKS

If all other non-proliferation controls fail, the ability of concerned states to take coordinated interdiction action provides a final opportunity to stop illicit transfers.

The Proliferation Security Initiative has helped participating states improve and coordinate their interdiction capabilities and holds promise both in its operational effectiveness and in its deterrent impact. However, the ad hoc nature of the initiative and its limited applicability could erode its promise over time.

Formalizing the PSI's organizational status would preserve this valuable non-proliferation tool and reduce its political vulnerability. The initiative could be formalized without creating an unwieldy bureaucratic superstructure, such as by creating an official point of contact to facilitate regular communication among participants and coordination with other non-proliferation bodies.

Ratify SUA amendment

The most effective means to strengthen the PSI is to extend its legal reach beyond territorial waters to the high seas. An amendment in October 2005 to the international Convention on the Suppression of Unlawful Acts Against the Safety of Maritime Navigation (SUA) allows interdiction on the high seas if the ships are registered to countries that are parties to the SUA. Effecting this change to international law, however, still requires ratification by a certain number of states. Most states are waiting for the United States to ratify the SUA amendment before they too attempt the difficult changes to national legislation that this would entail. By taking this step, the United States would continue to set an example and improve the effectiveness of the PSI.

CONCLUSION

The steps I have outlined will not quell the demand for nuclear weapons. Accomplishing that would require fundamental changes to the international system and to the role accorded nuclear deterrence. As with most markets, when there is a determined demand and the price is high enough, there is likely to be a supply. Supply-side controls can minimize illicit exports, however, by raising the costs and risks to would-be suppliers to the point where most will not find it worthwhile. Although supply-side measures cannot be one hundred percent effective while these weapons remain in demand, strict constraints on the black market are essential to prevent the break-down of the non-proliferation regime.

Mr. ACKERMAN. Mr. Albright.

STATEMENT OF MR. DAVID ALBRIGHT, PRESIDENT, INSTITUTE FOR SCIENCE AND INTERNATIONAL SECURITY

Mr. ALBRIGHT. Thank you for the invitation to testify today, and I applaud your continuing interest in this important threat to our security.

A.Q. Khan was finally busted in 2004 after he had done a great deal of damage to United States and international security. George Tenet described Khan as being at least as dangerous as Osama bin Laden. We would not be that concerned about Iran's nuclear efforts if not for Khan. Iran's gas centrifuge program would have likely floundered without Khan's assistance.

Despite his arrest, shutting down the Khan network has by no means brought a halt to nuclear smuggling, even by Pakistan. A key European corporate official said that after Khan's arrest in 2004, he saw no change in the pace of Pakistan's illicit orders for its own nuclear weapons program. Mohammed El-Baradei, the Director General of the IAEA, has warned that the Khan network is just the tip of the iceberg.

There is no reason to believe that illicit nuclear trade and the threat it poses have diminished significantly. The Khan network operated in 30 to 40 countries, according to some estimates, but few of those affected countries have launched any prosecutions of members of the network.

Illicit nuclear trade is the scourge at the heart of virtually all efforts by would-be and several de facto nuclear states to build or expand their nuclear arsenals. We must fear Iran, Pakistan and

North Korea because of their successes in nuclear smuggling. What makes this smuggling so difficult to stop is that the business is so lucrative for suppliers who rarely worry about getting caught, or, if caught, about receiving severe punishments.

The Khan network has highlighted the danger posed by transnational nuclear smuggling rings to U.S. international security, yet the conditions that gave rise to the Khan network and illicit nuclear trade in general have not receded. There remains a global black market in nuclear weapons technology that is larger, more dangerous and more difficult to stop than is currently understood. Networks similar to the Khan network may already exist or may emerge in coming years.

Several countries continue to conduct illicit nuclear trade. I have already mentioned Pakistan. Iran continues to seek items illicitly overseas for its gas centrifuge program, using trading companies or phony companies that arise from a long-standing nationally directed smuggling operation. India pursues a middle way between a legal approach and a full-blown illegal operation in its effort to obtain critical items for its nuclear weapons program, including its gas centrifuge program. North Korea has long pursued items for its own nuclear program illegally and is suspected of acting as an intermediary in procuring key items for the nuclear programs of other states.

Concern remains that North Korea may seek to sell off its nuclear expertise, materials and equipment to others. Khan demonstrated that it is possible for a shady network of scientists, industrialists and businessmen to sell turnkey nuclear weapons production facilities. A developing country can save years in its quest for nuclear weapons. In the future hostile groups in quasi failed states could buy the facilities to make nuclear explosive material and fashion a crude atomic bomb. According to Tenet, in the current marketplace if you have $100 million, you can be your own nuclear power.

I would like to now summarize some of the policy remedies and prescriptions in my testimony. Companies are the first line of defense against nuclear smuggling, yet many companies are not doing enough to thwart such sales or alert authorities about suspicious trade. The ethic of greed rather than nonproliferation remains dominant in many companies, and we need to find ways to bolster the ethics of companies throughout the world, but particularly in supplier states in Europe and in the United States.

In addition, governments and their intelligence agencies need to cooperate more with businesses in figuring out and thwarting the elaborate strategies of smugglers to obtain nuclear and nuclear-related goods. National prosecutions have been reluctant to work together to bring individuals to justice that are part of transnational smuggling rings. International cooperation among prosecutors and law enforcement officials is critical in investigating illicit trade, developing evidence and convicting smugglers, yet the prosecutions of key figures of the Khan network have shown that such cooperation occurs far too infrequently.

Remarkably, illegally helping outfit a nation with nuclear weapons is not treated as a crime against humanity, even though the

outcome could be the slaughter of hundreds of thousands of innocent people in a nuclear explosion.

Another issue is that responsible countries control sensitive nuclear information differently. Highlighting this concern at ISIS, we saw firsthand the inadvertent leakage of sensitive gas centrifuge design information from India that would be far better protected in Europe and the United States, and yet this information could be incredibly valuable to those who want to build gas centrifuges. And as far as we know, India still does not protect its information adequately. There is a need to reach an international agreement with key countries about the exact information that needs to be kept secret and the level and type of protection this information requires.

In addition, the United States and its allies should expand their efforts to retrieve sensitive information in the hands of illicit trade networks. And although this problem can be quite difficult, and we learned with the Khan network that much information is digitized, it still remains important. Because finally the smugglers treat this information as incredibly valuable and protect it and don't want to see it spread. And so if you can retrieve it from parts of the network, it could be that it doesn't spread further.

The IAEA needs a stronger mandate to track illicit nuclear trade. Because of the IAEA's investigations of the Iran, Libya, and Khan network, it has developed extensive expertise in tracking nuclear smuggling. Because of its concerns about the nuclear black market, the IAEA has established an investigative unit. Its purpose is to develop ways to better detect black marketeers and their customers. If this effort were more effectively integrated into the safeguards program of the IAEA, it could dramatically increase the chances of detecting and thwarting illicit trade, while improving the ability of the IAEA to detect undeclared nuclear facilities and materials.

In conclusion, the arrest of Khan and this lieutenant should have been a call to arms. Instead the response has been tepid and is in disarray. The lack of action against members of the Khan network shows a lack of commitment to stopping the spread of nuclear weapons. Since the Khan network was exposed, a number of reforms have taken place, but these steps have not confronted the root of the problem. Illicit nuclear trade remains the well-trodden path to nuclear weapons for both today's enemies and allies, yet few are even aware that this problem exists, let alone committed to solving it.

Thank you again for the opportunity to testify.

[The prepared statement of Mr. Albright follows:]

PREPARED STATEMENT OF MR. DAVID ALBRIGHT, PRESIDENT, INSTITUTE FOR SCIENCE AND INTERNATIONAL SECURITY

Abdul Qadeer Khan was finally busted in 2004 after he had done a great deal of damage to U.S. and international security. George Tenet, former Director of the CIA, reportedly described Khan as being "at least as dangerous as Osama bin Laden."[1]

Khan's arrest and confession ended a career in nuclear smuggling that lasted more than 30 years. For most of this time, Khan outfoxed Western intelligence agencies and governments in his effort to secure nuclear weapons for Pakistan. His

[1] Douglas Jehl, "CIA Says Pakistanis Gave Iran Nuclear Aid," *The New York Times*, November 24, 2004.

shift in the mid-1980s to supplying other developing countries with the means to make nuclear weapons remained hidden or ignored for years.

At home, he was a much decorated national hero, receiving most of the public credit for Pakistan getting nuclear weapons. No one in Pakistan was willing to put Khan on trial after his arrest or allow other governments or the International Atomic Energy Agency (IAEA) access to him for questioning about his network's far flung illegal activities. Not surprisingly, President Pervez Musharraf pardoned him after Khan made a public apology. Going against public opinion, however, Musharraf did put Khan under indefinite house arrest.

Despite his arrest, shutting down the Khan network has by no means brought a halt to nuclear smuggling, even by Pakistan. A key European corporate official said that after Khan's arrest in 2004 he saw no change in the pace of Pakistan's illicit orders for its own nuclear weapons program. Mohammed El-Baradei, the Director General of the International Atomic Energy Agency and winner of the Nobel Peace Prize, has warned that the Khan network is just the "tip of the iceberg." There is no reason to believe that illicit nuclear trade and the threat it poses have diminished significantly.

Ambassador Abdul Minty, Deputy Director General of the South African Department of Foreign Affairs, has said that the Khan network operated in 30–40 countries, but few of these affected countries have launched any prosecutions of members of the network. Only a handful of Khan's associates were even arrested. As an early opponent of the apartheid regime in the mid-1970s, Minty was one of the first to wage a campaign against South Africa's buying campaign in Europe to outfit its fledging nuclear weapons program. He knows first hand the difficultly of stopping smuggling rings and now worries that the Khan network or portions of it have reconstituted.

Illicit nuclear trade is the scourge at the heart of virtually all efforts by would-be and several *defacto* nuclear weapons states to build or expand their nuclear arsenals. We must fear Iran, Pakistan, and North Korea because of their success in nuclear smuggling. What makes this smuggling so difficult to stop is that the business is so lucrative for suppliers, who rarely worry about getting caught or, if caught, about receiving severe punishments.

Despite the seriousness of illicit nuclear trade, it is receiving scant attention in the wake of the Khan network's exposure. Where significant resources have been brought to address the threat of fissile material smuggling in the former Soviet Union and elsewhere, the issue of illicit trade, which involves multiple sources and end-users, has receded from the nonproliferation agenda. I believe that a deeper understanding of how such trade occurs and ways to thwart it are critical and should be considered on a par with fissile material protection and control in achieving threat reduction objectives.

THE DEVELOPMENT OF ILLICIT NUCLEAR TRADE

Back in the early 1970s, Khan was the first to realize that the means to make nuclear weapons could be purchased piecemeal from Western suppliers. He once joked arrogantly in an on-camera interview with a German journalist, "If a supplier refuses to deliver me equipment I need, I ask my friend Tom, and he will get it for me."[2] Khan understood that through reverse engineering and duplication, he could build himself an entire uranium enrichment facility one piece of centrifuge at a time instead of buying a plant in its entirety.

Khan's accomplices did not come from outlaw states, and were not terrorists. They were engineers—his European university chums—or ambitious businessmen out to get rich quick. Urbane and educated, they stashed millions of dollars in secret bank accounts and in some cases handed down the family business to their children. They also drove the business by always being on the lookout for promising new markets.

With his pioneering methods in the late 1970s, he succeeded in getting Pakistan the bomb in a few short years where others in his country had failed. Prior to Khan, countries typically sought to buy complete nuclear facilities, such as reactors and reprocessing plants, under the guise that they were only for civilian purposes, but in fact they would be for producing and separating plutonium for nuclear weapons. By the mid-1970s, under pressure from first the Ford Administration and then by the Carter Administration, the supplier states stopped selling reprocessing plants to developing countries. European suppliers, under U.S. pressure, cancelled their offers to sell reprocessing plants to Taiwan, Pakistan, and South Korea.

After Khan paved the way in the late 1970s and early 1980s, many countries followed his path. Iraq, Iran, North Korea, Brazil, India, and South Africa all encoun-

[2] Interview with Egmont Koch, August 1998.

tered difficulty buying complete nuclear facilities, and thus systematically pursued the illicit route to acquiring high-tech items for their nuclear weapons programs from Western suppliers, many of whom were all too willing to help for a large profit.

The process of illicitly obtaining a clandestine nuclear facility piece-by-piece typically requires a sophisticated procurement network. Based on a series of case studies developed at ISIS, illicit nuclear trade can be seen as involving a set of fairly complicated actions, including:[3]

- Developing a national illicit procurement infrastructure that can organize and obtain the necessary items for a secret nuclear weapons program;
- Recruiting or connecting with key foreign players that can sell both legal and illicit items, or can act as agents or trusted sources of critical technology. Such recruitment efforts have involved off-shore agents or companies, middlemen, or nuclear experts, and partial or complete control of foreign companies;
- Acquiring specialized know-how;
- Gaining the necessary education and training of program personnel;
- Developing secret logistics, including banking and financial transfers and transportation;
- Keeping secret the procurement efforts and the construction of the nuclear facilities;
- Exploiting weaknesses and loopholes of national export control regulations and laws. Supplier nations too often have weak laws or create loopholes in the laws, and there can be weak coordination within governments to reduce the threat of illicit nuclear trade; and
- Mastering the creation of false end-user statements.

KHAN'S UNPRECEDENTED TRANSNATIONAL ILLICIT SUPPLY ORGANIZATION

Always the pioneer, Khan charted a new pathway to nuclear proliferation in the mid-1980s. He started to sell centrifuges and nuclear weapon designs to other developing countries with nuclear ambitions, starting with Iran. With few moral or political constraints and a touch of ideology, Khan realized that other developing countries would pay handily for sensitive nuclear technology, particularly nuclear equipment he had tested and improved upon in his own nuclear weapons effort. He was helped in realizing this potentially lucrative market by Western company officials who had been key suppliers to Pakistan's nuclear weapons program and saw the prospect of greater profits. He eventually reached the point in the late 1990s of being able to sell a turn-key gas centrifuge plant to Libya. Figure 1 illustrates this approach.

Khan's success can be traced to his creation of international manufacturing and smuggling operations, always seeking businessmen eager to make money and countries with weak export controls. For example, the Khan network organized the acquisition of machine tools in Europe and their shipment to Malaysia for use in making centrifuge components, which were exported to Dubai and then to Libya. Agents of the Khan network arranged for a centrifuge subcomponent to be made by an unsuspecting company in Switzerland using raw materials from Russia or Italy that had been ordered by a trading company in Singapore. The agents then arranged for the subcomponent to be sent from Switzerland to Turkey where other key players in the Khan network integrated it with other parts into a centrifuge component that was sent first to Dubai and then Libya.

One of Khan's most dangerous innovations was his ingenious marketing of sensitive nuclear equipment, materials, and detailed designs and manufacturing instruction booklets. According to a senior IAEA official, Khan developed packages containing key equipment and documentation, often digitized, sufficient to achieve one step in the process of building a nuclear weapon. The packages were offered to prospective customers, who could pick a few or all of them, maximizing Khan's profits and efficiency. However, these packages remain a proliferation threat. It is unknown who has them and who may use them in the future to build nuclear weapons. Although the danger that such detailed designs would emerge on the internet has not been realized, a greater, largely unnoticed danger may have already come to pass. Digitized information critical to developing a nuclear weapon program may be in the hands of unknown smugglers who ironically would jealously protect this information so that they can sell them for maximum profit, possibly to our enemies.

[3] For more information on some of these case studies and the characteristics of illicit nuclear trade, see www.exportcontrols.org.

The Khan network has highlighted the danger posed by transnational nuclear smuggling rings to U.S. and international security. Yet the conditions that gave rise to the Khan network and illicit nuclear trade in general have not receded. There remains a global black market in nuclear weapons technology that is larger, more dangerous and more difficult to stop than is currently understood. Similar networks may already exist or may emerge in the coming years.

CURRENT SITUATION

Some countries, such as Brazil and South Africa, dropped out of the illicit trade business, as they abandoned their secret nuclear weapons efforts around 1990. But others continue. I have already mentioned Pakistan. Iran continues to seek items illicitly overseas for its gas centrifuge program using trading companies or phony companies that arise from a long-standing, nationally directed smuggling operation. India pursues a middle way between a legal approach and a full-blown illegal operation in its effort to obtain critical items for its nuclear weapons program. North Korea has long pursued items for its own nuclear program illegally and is suspected of acting as an intermediary in procuring key items for the nuclear programs of other states. Concern remains that North Korea may seek to sell off its nuclear expertise, materials, and equipment to others.

Nuclear smuggling has developed into a sophisticated operation over the last 30 years. It involves phony front companies, ingenious marketing strategies, and a continuous search for loopholes in laws prohibiting or controlling the export of sensitive technology to other states. Such "tricks of the trade" help nuclear smugglers avoid detection, maintain their flow of revenue and, not coincidently, make the world a far more dangerous place in which to live.

Smugglers continue to corrupt seemingly incorruptible businessmen, particularly in developing countries where governments are unable to monitor or control their activities. Illegal businesses can be hidden inside legitimate ones and the enormous growth of global trade provides the perfect cover to hide the black market's transnational transactions.

Some of the current methods of illicit procurement include:

- Front companies or state procurement agencies falsely acting as a private company to get around other countries' laws or regulations banning the sale of direct or dual use nuclear items to a proliferant state's secret nuclear or military programs;
- Domestic and overseas trading companies;
- Ostensibly legitimate suppliers, increasingly located in developing countries, that provide dual-use items and function as buying agents of other items for the proliferant state; and
- Transnational, illicit brokers, which specialize in acquiring and selling sensitive equipment through circuitous routes to proliferant states' military and nuclear programs.

Easing the task of illicit procurement is that technology continues to improve and spread throughout the world, making it easier to obtain the materials, equipment and know-how to make nuclear weapons. More countries, many of which are still considered developing nations, have sophisticated manufacturing and machine tool capabilities that can be exploited to make items for nuclear weapons. In addition, detailed classified information about nuclear weapons and how to make them continues to leak. Sensitive information has spread to shady entrepreneurs determined to make a profit. Experts with experience in producing fissile material and nuclear weapons are now spread throughout the world, potentially providing a pool of expertise for terrorist efforts to build nuclear weapons. New technologies could also emerge that would simplify the task of making fissile material or producing nuclear weapons.

John M. McConnell, Director National Intelligence, testified before the Senate Armed Service Committee on February 27, 2007: "The time when only a few states had access to the most dangerous technologies has been over for many years. Dual-use technologies circulate easily in our globalized economy, as do the scientific personnel who design and use them. As a consequence, it is more difficult for us to track efforts to acquire, for nefarious purposes, these widely available components and technologies."[4]

[4] Statement of John M. McConnell Director, National Intelligence Committee on Senate Armed Services, February 27, 2007

"We are watching several states for signs of nuclear weapons aspirations, in part because of reporting of past contact with A. Q. Khan and his network when it was active. We also are concerned about rogue or criminal elements willing to supply materials and technology—alone or with a network—without their government's knowledge."

There is a growing danger that terrorist groups will soon be able to build their own atomic bombs. A secret U.S. government study in the 1960s demonstrated that two newly minted physicists could design a crude weapon. Their inability to make the components of a nuclear weapon, however, dampened concern that a terrorist group could make a crude nuclear weapon, particularly the more complicated implosion-type nuclear device. Because of the unbridled sales of technology and know-how by black marketers, that conclusion must now be reevaluated. Terrorists may be able to buy detailed nuclear weapon designs from black marketers and find it far easier to build a much wider range of crude atomic bombs.

Khan demonstrated that it is possible for a shady network of scientists, industrialists, and businessmen to sell turn-key nuclear weapons production facilities. An undeveloped country could save years in its quest for nuclear weapons. In the future, hostile groups in failed states could buy the facilities to make nuclear explosive material and fashion a crude atomic bomb. According to Tenet, "In the current marketplace, if you have a hundred million dollars, you can be your own nuclear power."[5]

POLICY CHALLENGES AND RECOMMENDATIONS

The following is a summary of several of the major challenges governments and international organizations face in addressing illicit trade:

PSI is not a panacea: The Bush Administration has placed too much reliance on the Proliferation Security Initiative (PSI). Lack of actionable intelligence has severely undercut the usefulness of the PSI. International legal problems in intercepting ships on the high seas also inhibit its practical application. For example, the UN Security Council resolution on North Korea highlighted the risk of a military confrontation breaking out if a North Korean ship is intercepted by the U.S. Navy, undermining support for one of the main stated rationales of PSI.

Illicit nuclear trade is pervasive: Governments and publics have been unable or unwilling to recognize the pervasiveness of illicit nuclear trade. Illicit trade is conducted by U.S. enemies, such as Iran and North Korea, but also by U.S. allies such as India and Pakistan. Many newly developing countries resent the controls of industrialized countries and resist efforts to crack down on smuggling operations in their own countries. Although worldwide intelligence cooperation is improving, more effective coordination is needed to uncover smuggling rings

Prosecutorial Ineffectiveness: National prosecutions have been reluctant to work together to bring individuals to justice that are part of transnational smuggling rings. International cooperation among prosecutors and law enforcement officials is critical in investigating illicit trade, developing evidence, and convicting smugglers. Yet, the prosecutions of key figures of the Khan network have shown that such cooperation occurs far too infrequently. Remarkably, illegally helping outfit a nation with nuclear weapons is not treated as a crime against humanity, even though the outcome could be the slaughter of hundreds of thousands of innocent people in a nuclear explosion.

Need to strengthen the first line of defense—the private sector: Companies are the first line of defense against nuclear smuggling. Yet, many companies are not doing enough to thwart such sales or alert authorities about suspicious trade. The ethic of greed rather than non-proliferation remains dominant in most companies. In addition, governments and their intelligence agencies need to cooperate more with businesses in figuring out and thwarting the elaborate strategies of smugglers to obtain nuclear and nuclear-related goods.

UNSC Resolution 1540 is poorly implemented: UN Security Council Resolution 1540 is an important resolution that has created a requirement for all countries to create export control laws. However, the export control requirements in the resolution remain poorly implemented.

Loopholes in Export Controls: Generic problems, such as uneven application and poor enforcement, undermine the effectiveness of national and international export controls, particularly "catch-all" clauses. Current export controls have a major loophole that allows trading companies to buy many dual-use items from legitimate suppliers using a false but believable end-use. Then, without the knowledge of the suppliers, these companies send the items either directly or increasingly through other

[5] George Tenet, *At the Center of the Storm*, (New York: HarpersCollins, 2007), p. 287.

trading companies to secret nuclear programs. Few companies have the resources or desire to check all these trading companies. Even fewer are willing to take the step of banning all commerce with trading companies, probably the only step that can plug this loophole under existing national and international arrangements.

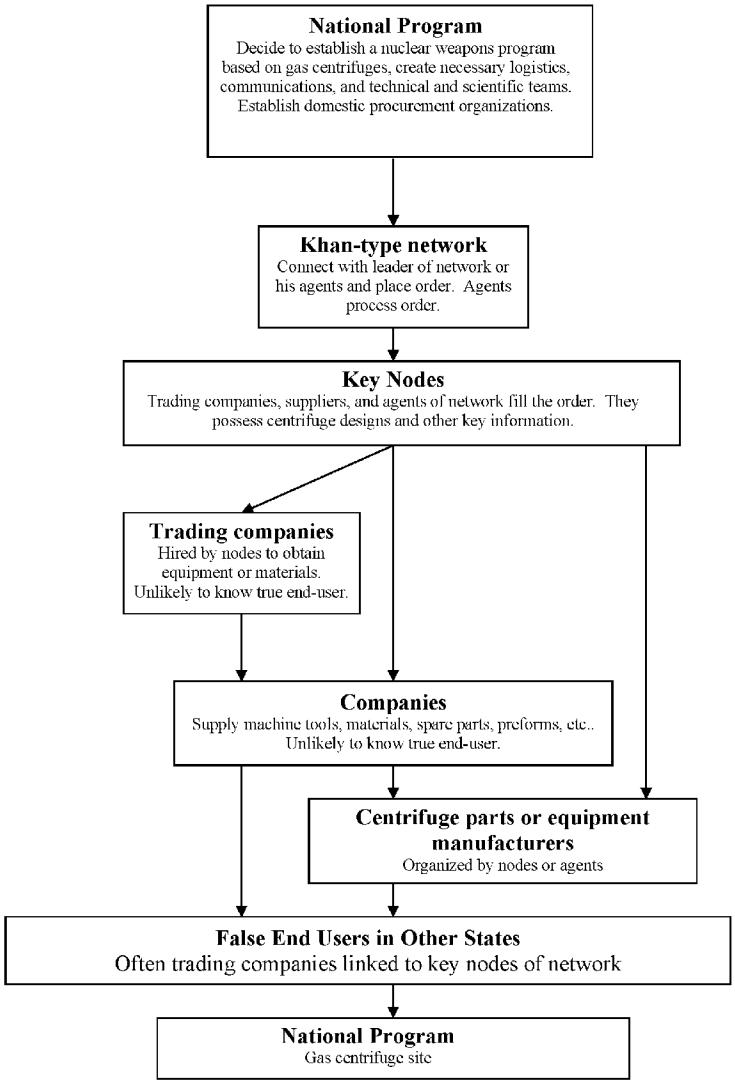
Need to control sensitive information better: Countries control sensitive nuclear information differently. Highlighting this concern, we at ISIS saw first hand the inadvertent leakage of sensitive gas centrifuge design information from India that would be far better protected in Europe and the United States. There is a need to reach an international agreement with key countries about the exact information that needs to be kept secret and the level and type of protection this information requires. In addition, the United States and its allies should expand their efforts to retrieve sensitive information in the hands of illicit trade networks.

Lack of empowerment of the IAEA: The IAEA needs a mandate to track illicit nuclear trade. Because of its investigations of Iran, Libya, and the Khan network, it has developed extensive expertise in tracking nuclear smuggling. Because of the growth of the nuclear black market, the IAEA has established an elite investigative unit inside the IAEA. Its purpose is to develop ways to better detect black marketers and their customers. However, this effort is not integrated into the IAEA's normal safeguards operation. If integrated into the safeguards program of the IAEA, this effort could dramatically increase the chances of detecting and thwarting illicit nuclear trade, while improving the ability of the IAEA to detect undeclared nuclear facilities and materials.

CONCLUSION

The arrest of Khan and his lieutenants should have been a call to arms. Instead, the response has been tepid and is in disarray. Ambassador Minty worries that the lack of action against members of the Khan network shows a lack of commitment to stopping the spread of nuclear weapons. Since the Khan network was exposed, a number of reforms have taken place. But these steps have not confronted the root of the problem. Illicit nuclear trade remains the well-trodden path to nuclear weapons for both today's enemies and allies. Yet, few are even aware that this problem exists, let alone committed to solving it.

Figure 1 A Simplified Khan Network Pathway: Based on Libya's Order of a Gas Centrifuge Plant DRAFT



Mr. ACKERMAN. Ms. Curtis.

STATEMENT OF MS. LISA CURTIS, SENIOR RESEARCH FELLOW, ASIA STUDIES CENTER, THE HERITAGE FOUNDATION

Ms. CURTIS. Thank you, Chairman Ackerman, Chairman Sherman, Congressman Pence and the rest of the distinguished members of the subcommittees.

Today I would like to seek to explain the motivations behind Pakistan's nuclear program and its regional security perceptions, as well as suggest ideas for United States policy. The potential for the intersection of terrorism and nuclear weapons is arguably the greatest threat to American national, even global, security. As the United States seeks to deter the possibility of terrorists gaining access to nuclear weapons, it must consider carefully its policies toward Pakistan.

The results of the investigations into Pakistan nuclear scientist, A.Q. Khan's, nuclear black market and proliferation network demonstrate the devastating consequences of proliferation by individuals with access to state-controlled nuclear programs. Even after details emerged on the tremendous damage done by the A.Q. Khan network, there has been no formal prosecution of the Pakistan associates of Khan, and Khan himself is merely under house arrest. President Musharraf says he cannot prosecute Khan or allow him to be questioned by United States or international authorities because of the hero status he enjoys for contributing to Pakistan's nuclear weapons program.

Some observers have incorrectly characterized the threat of nuclear terrorism in Pakistan as stemming from the danger of radical Islamists overrunning the country and gaining control of its nuclear assets; however, given that the religious parties lack wide popular support in Pakistan, and that President Musharraf and his senior army commanders largely oppose the Islamist agenda, the probability of this scenario occurring is low.

The more worrisome trend in Pakistan is the links between some retired military and intelligence officials, as well as nuclear scientists, to Taliban and al-Qaeda terrorists. Former Director of Central Intelligence George Tenet reports in his memoirs that A.Q. Khan rebuffed several approaches by Osama bin Laden for access to nuclear know-how; however, revelations about two retired Pakistani nuclear scientists who met with al-Qaeda leadership just before 9/11 reminds us that the threat of terrorists accessing nuclear weapons in Pakistan is very real.

According to Tenet and other open sources, two retired Pakistan Atomic Energy Commission officials met with bin Laden and al-Zawahiri in August 2001 to discuss the development of chemical, biological and nuclear weapons. Pakistan authorities arrested a handful of retired army officials and nuclear scientists related to this incident, but later released them as they were not considered weapons experts.

This case demonstrates the critical importance of preventing the penetration of the Pakistani nuclear program by individuals sympathetic to al-Qaeda goals. The best chance for success on this front will lie within a framework premised on a robust United States-Pakistan partnership based on trust and mutual understanding.

Pakistan's nuclear program is driven primarily by Islamabad's perception that it needs to counter the Indian threat and to a lesser extent by its desire to establish itself as a major Islamic power. Pakistan and India formally launched a composite dialogue process in January 2004 that includes talks on nuclear confidence building. In June 2004, New Delhi and Islamabad agreed to continue a bilateral moratorium on further nuclear testing, to provide each other advance notice of nuclear-capable missile tests, and to establish a hotline between each other's foreign ministries.

There are steps the United States can pursue in South Asia to both prevent nuclear weapons from falling into the wrong hands and to avert a dangerous nuclear arms race between Pakistan and India. Washington already is taking steps in this direction, but it will need to increase its attention and resources on expanding these efforts.

First, we need to leverage, not condition, United States assistance to Pakistan. Based on the negative consequences of the United States cutting assistance to Pakistan in 1990, I believe it would be a mistake to again halt or condition our aid despite the challenges we face in the relationship with regard to counterterrorism, nonproliferation and democracy. The 1990 aid suspension cost the United States valuable leverage with Islamabad. It damaged our military-to-military relationships, and stoked strong anti-U.S. sentiment that still exists today. Cutting or conditioning aid would awaken memories of 1990 and weaken Pakistani public support for pursuing a relationship with the United States. Instead, Washington should target its assistance programs more effectively to accomplish specific goals.

On the nuclear issue, the U.S. should seek to implement programs that help improve safety and security at nuclear facilities. Given Pakistan's sensitivities on the issue of maintaining sovereign control of its nuclear assets, such cooperation is likely to remain largely out of the public eye. Perhaps over time, though, as the United States-Pakistan partnership solidifies, it will be possible to develop a Nunn-Lugar cooperative threat reduction program similar to what the United States has established with Russia and some of the former Soviet States. Potential areas for cooperation with Pakistan include nuclear reactor safety, safeguarding nuclear material, rapid response to nuclear-related emergencies and expanded export control cooperation.

Tailoring a CTR program for Pakistan would be challenging since Pakistan is not a signatory to the nonproliferation treaty, and the United States, of course, is prohibited both by legal and treaty obligations from assisting nuclear programs outside the nonproliferation regime.

Another obstacle is the basic premise of the Nunn-Lugar legislation that requires recipients to make substantial investment of their own resources toward dismantling or destroying such weapons. It would also be difficult to develop a CTR program without addressing the fact that India-Pakistani rivalry is what drives Pakistan's nuclear program. Therefore, it is necessary for the United States to also redouble its efforts to encourage India-Pakistan nuclear confidence building.

In conclusion, preventing Pakistan's nuclear weapons and technology from falling into the hands of terrorists should be at the top of Washington's agenda. Revelations about the devastating impact of A.Q. Khan's activities will prevent Washington from considering a civil nuclear cooperation agreement with Pakistan similar to that being pursued with India. The United States should instead focus specifically on nuclear safety and cooperation and encourage an Indian-Pakistan dialogue that will improve Pakistan's regional security perceptions.

Thank you.

[The prepared statement of Ms. Curtis follows:]

PREPARED STATEMENT OF MS. LISA CURTIS, SENIOR RESEARCH FELLOW, ASIA STUDIES CENTER, THE HERITAGE FOUNDATION

"U.S. POLICY AND PAKISTAN'S NUCLEAR WEAPONS: CONTAINING THREATS AND ENCOURAGING REGIONAL SECURITY" [1]

The potential for the intersection of terrorism and nuclear weapons is arguably the greatest threat to American national, even global, security. As the U.S. seeks to deter the possibility of terrorists gaining access to nuclear weapons, it must consider carefully its policies toward Pakistan. The results of investigations into Pakistani nuclear scientist A.Q. Khan's nuclear black market and proliferation network demonstrate in stark terms the devastating consequences of nuclear proliferation by individuals with access to state-controlled nuclear programs.

Some observers have incorrectly characterized the threat of nuclear terrorism in Pakistan as stemming from the danger of radical Islamists over-running the country and gaining control of the country's nuclear assets. However, given that the religious parties lack wide popular support and that President Musharraf and his senior Army commanders largely oppose the Islamist agenda, the probability of this scenario occurring is relatively low. When it comes to preventing terrorists from acquiring nuclear bombs, the more worrisome trend in Pakistan is the links between some retired military and intelligence officials and nuclear scientists to Taliban and al Qaeda terrorists.

U.S. policy should therefore center on helping to prevent the penetration of the nuclear establishment over time by individuals sympathetic to al Qaeda goals. Despite Pakistan's arguments that its nuclear weapons are safely guarded, the U.S. must construct and implement policies that pro-actively thwart the unwelcome possibility of Pakistan's nuclear weapons falling into the wrong hands. Given the tangled history of U.S.-Pakistan relations, especially with regard to Pakistan's nuclear weapons program, the development of workable solutions to address the nuclear terrorism threat will be challenging and complicated. The best chance for success will lie within a framework premised on a robust U.S.-Pakistan partnership based on trust and mutual understanding.

U.S.-Pakistan Ties and Islamabad's Quest for Nuclear Weapons

Pakistan's regional security concerns have led it to acquire nuclear weapons in the face of persistent and often severe international penalties. After the 1964 Chinese nuclear test, then Foreign Minister Zulfiqar Ali Bhutto concluded India would also go nuclear and that Pakistan would have to follow in its footsteps. Pakistan's humiliating defeat in the 1971 war with India that resulted in the dismemberment of the country further convinced Zulfiqar Ali Bhutto (by then President of the country) of Pakistan's need for a nuclear deterrent against India's conventional superi-

[1] The Heritage Foundation is a public policy, research, and educational organization operating under Section 501(C) (3). It is privately supported, and receives no funds from any government at any level, nor does it perform any government or other contract work. The Heritage Foundation is the most broadly supported think tank in the United States. During 2006, it had more than 283,000 individual, foundation, and corporate supporters representing every state in the U.S. Its 2006 income came from the following sources: individuals 64%; foundations 19%; corporations 3%; investment income 14%; and publication sales and other 0%. The top five corporate givers provided The Heritage Foundation with 1.3% of its 2006 income. The Heritage Foundation's books are audited annually by the national accounting firm of Deloitte & Touche. A list of major donors is available from The Heritage Foundation upon request. Members of The Heritage Foundation staff testify as individuals discussing their own independent research. The views expressed are their own, and do not reflect an institutional position for The Heritage Foundation or its board of trustees.

ority. It was at this point that Bhutto decided Pakistan would secretly pursue a nuclear weapon. India's 1974 nuclear test accelerated the Pakistani efforts to acquire nuclear weapons and by late 1975, Bhutto had placed metallurgist Abdul Qadeer Khan in charge of a clandestine effort to produce enriched uranium for nuclear weapons.[2]

Another India-Pakistan military crisis in 1987 sparked by a large-scale Indian military exercise called "Operation Brass Tacks" only strengthened Pakistani resolve on its decision to develop a credible nuclear weapons program. The Pakistanis believed "Operation Brass Tacks" was cover for a planned Indian invasion and so began amassing their own troops near the border. At the peak of the crisis, A.Q. Khan announced to an Indian journalist that Pakistan had a nuclear weapons capability.[3]

Two years prior to "Operation Brass Tacks" in 1985, the U.S. Congress passed legislation referred to as the Pressler Amendment, requiring the U.S. President to certify that Pakistan did not possess a nuclear weapon as a pre-condition for further U.S. assistance. When President George Bush Senior decided he could no longer certify that Pakistan did not possess a nuclear weapon on October 1, 1990, the U.S. suspended its $564 million aid program to Pakistan for Fiscal Year 1991. The loss of $300 million annually of arms and other military supplies was a heavy blow to Pakistan's defense establishment, while the cut-off of economic assistance added to problems that were already severely weakening the Pakistani economy.[4]

Pakistan conducted its first nuclear tests in May 1998 in response to a round of testing by India after it broke a 24-year self-imposed moratorium on nuclear testing. The Clinton Administration imposed fresh sanctions on Pakistan (and India) following the 1998 tests but gradually lifted the restrictions. Following the 9/11 attacks, the Bush Administration lifted all remaining nuclear sanctions against both Pakistan and India. After the 1998 nuclear tests A.Q. Khan boasted that he made Pakistan's program more advanced and reliable than the Indian program, citing Pakistan's mastery of the uranium enrichment process.[5]

Pakistan's Strategic Neighborhood

Pakistan-India Relations: Pakistan's nuclear program is driven primarily by Islamabad's perception that it needs to counter the Indian threat and to a lesser extent by its desire to establish itself as a major Islamic power. There is genuine concern in Pakistan that India will take advantage of the U.S. civil nuclear deal to expand its weapons program. Reports over the last year about Pakistan's construction of a major heavy water nuclear reactor at the Khushab facility have raised concern that Islamabad will significantly boost its plutonium production capabilities, thereby fueling a regional arms race that could involve China.

The six-month-long India-Pakistan military crisis sparked by a terrorist attack on India's parliament in December 2001 was defused after Deputy Secretary Armitage secured a commitment from President Musharraf to end the infiltration of Kashmiri militants into Indian-held Kashmir. Shortly before the stand-off ended, the U.S. Embassy in New Delhi evacuated the families of diplomats on the grounds that a military conflict between the two adversaries could escalate into a nuclear exchange. Although India says nuclear war was never a possibility, the Pakistani security establishment appears to believe that the crisis proved the effectiveness of its nuclear deterrent against India.

Pakistan and India formally launched a composite dialogue process in January 2004 that includes talks on nuclear confidence building. In June 2004 New Delhi and Islamabad agreed to continue a bilateral moratorium on further nuclear tests; to provide each other advance notice of nuclear-capable missile tests; and to establish a hotline between each other's foreign ministries. These talks marked the first follow-up discussions to the 1999 Lahore Memorandum of Understanding, designed to reduce the risks of a nuclear exchange due to accident or misunderstanding. Earlier this year, India and Pakistan furthered these talks by inking an agreement to notify each other immediately via their hotline links in the event of any accident relating to nuclear weapons.

Pakistan-China: Pakistan and China have had long-standing, strategic ties. China is Pakistan's largest defense supplier and the Chinese view Pakistan as a useful counterweight to Indian power in the region. In the run-up to Chinese President Hu

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[2] Dennis Kux, *The United States and Pakistan: 1947–2000* (Karachi: Oxford University Press), p.224.

[3] Kux, pp. 284–285.

[4] Kux, pp.308–309.

[5] Zahid Hussain, *Frontline Pakistan: The Struggle with Militant Islam* (New York: Columbia University Press, 2007), p. 161.

Jintao's visit to Pakistan last November, media reports speculated that Beijing would sign a major nuclear energy cooperation agreement with Pakistan.[6] In the end, however, the Chinese leader provided a general pledge of support to Pakistan's nuclear energy program but refrained from announcing plans to supply new nuclear reactors. China has helped Pakistan build two nuclear reactors at the Chasma site in the Punjab Province and provided Pakistan with nuclear technology as far back as the 1970s. China also is helping Pakistan develop a deep sea port at Gwadar in the Pakistani province of Baluchistan, near the mouth of the Persian Gulf.

One source of tension between Beijing and Islamabad that has surfaced in the past has been over the issue of rising Islamic extremism in Pakistan and the ability of Chinese Uighur separatists to receive sanctuary and training among other radical Islamist groups on Pakistani territory. To mollify China's concerns, Pakistan in recent years has begun to clamp down on Uighur settlements and on religious schools used as training grounds for militant Islamists.[7] Their tensions over Islamic extremism surfaced this past weekend when Islamic vigilantes kidnapped several Chinese citizens they accused of running a brothel in Islamabad. The extremists released the kidnap victims shortly after they were captured, saying they did so in the interest of maintaining Pakistan's good relations with China.

Pakistan-Iran: Pakistan's relations with Iran have been far from smooth over the last three decades. Relations soured following the 1979 Iranian Revolution due to Pakistani President Zia's previous support to the Shah's regime and his encouragement to Sunni militant organizations that pushed a strict Sunni interpretation of Islam and targeted the minority Shiia population in Pakistan. Iran, in turn, began to export to Pakistan Shiia militants to counter the Sunni extremists. Sectarian violence has ebbed and flowed over the last fifteen years in Pakistan and continues to have a chilling impact on Iranian-Pakistani relations.

Pakistan's support to the Sunni Taliban in the mid-1990s significantly raised tensions between Tehran and Islamabad. These tensions climaxed in August 1998 when the Taliban killed several Iranian diplomats in the northern Afghan city of Mazar-e-Sharif. Iran responded by amassing its military along the border with Afghanistan. If fighting had broken out between Iranian forces and the Taliban, Pakistan would have likely been drawn into the conflict in support of the Taliban. It is difficult to imagine Pakistan would have officially sanctioned nuclear cooperation with such an unsteady neighbor, although some analysts believe the bulk of the nuclear cooperation occurred in the early 1990s before the Taliban had emerged and shortly after the U.S. had cut off assistance to Pakistan.

Pakistan's halt to official support to the Taliban following 9/11 has helped to improve Pakistani-Iranian ties and they are actively engaged in talks on developing an Iran-Pakistan-India oil and gas pipeline.

Terrorism and Nuclear Weapons

Former Director of Central Intelligence George Tenet reports in his memoirs that A.Q. Khan rebuffed several approaches by Osama bin Laden for access to nuclear know-how, although it was not clear why.[8] Perhaps Khan understood that cooperating with the renowned terrorist leader was a bridge too far as it risked contributing to a scenario of nuclear Armageddon that could cause mass destruction and loss of life in his own country.

Although A.Q. Khan avoided engaging al Qaeda on nuclear issues, earlier revelations about a group of former Pakistani military officials and nuclear scientists who met with Osama bin Laden around the time of 9/11 remind us of the continuing threat of the intersection of terrorism and nuclear weapons in Pakistan. On October 23, 2001, acting on an American request, Pakistani authorities detained Bashiruddin Mahmood and Abdul Majeed, two retired Pakistan Atomic Energy Commission (PAEC) officials. They had been involved in relief work in Afghanistan since their retirement from the PAEC in 1999 through a non-governmental organization (NGO) they established called Ummah Tameer-e-Nau (UTN). In November 2001, the coalition forces found documents in Afghanistan relating to the UTN's interest in biological weapons. This prompted Pakistani security forces to arrest seven members of the UTN's board, most of whom were retired Pakistani Army officials and nuclear scientists.[9]

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[6] Jo Johnson, Farhan Bokhari, and Edward Luce, "US Fears China-Pakistan Nuclear Deal," *The Financial Times*, November 16, 2006.

[7] Ziad Haider, "Clearing Clouds Over the Karakoram Pass," *YaleGlobal ONLINE*, March 29, 2004 at http://yaleglobal.yale.edu/display.article?id=3603&page=2.

[8] George Tenet, *At the Center for the Storm* (New York: HarperCollins Publishers, 2007), p. 261.

[9] Hussain, pp. 154–155.

George Tenet speculates in his memoirs that UTN's contacts with the Taliban and al Qaeda may have been supported by some elements within the Pakistani military and intelligence establishment. Tenet says Pakistani interrogations of the seven board members were initially insufficient. He further notes that despite CIA warnings to Pakistani officials about UTN's activities before 9/11, it was only when President Bush dispatched him to Pakistan in November 2001 following revelations of a meeting between Bin laden, al-Zawahiri, and UTN leaders that Musharraf took serious action.[10]

Outcome of Khan Investigations

Similar foot-dragging by the Pakistani authorities was evident in the case of the A.Q. Khan proliferation network. U.S. officials had repeatedly raised their concern about A.Q. Khan's activities with President Musharraf but it was not until Washington provided indisputable proof of its knowledge of Khan's activities and threatened to go public with the information in late 2003 that Musharraf took direct action to halt Khan's activities.[11]

Even after details emerged on the tremendous damage done by the A.Q. Khan proliferation network, there was no formal prosecution of the Pakistani associates of Khan, and Khan himself is merely under house arrest. President Musharraf claims he cannot formally prosecute Khan or allow him to be questioned by U.S. or international authorities because of the hero status Khan enjoys for contributing to the development of Pakistan's nuclear weapons program.

U.S. Policy Recommendations

There are steps the U.S. can pursue to help ensure nuclear weapons do not fall into the wrong hands in Pakistan and to prevent a dangerous nuclear arms race between Pakistan and India. Washington has already begun to pursue such initiatives but will need to increase its attention and resources on expanding and strengthening such measures.

Leveraging, Not Conditioning U.S. Assistance: Based on the negative consequences brought by the U.S. cut-off of assistance to Pakistan in 1990, it is unlikely that a narrow policy of cutting or even conditioning assistance to Pakistan through U.S. legislation now would help meet the above goals. The 1990 aid suspension cost the U.S. valuable leverage with Islamabad, damaged military-to-military relationships, and stoked strong anti-U.S. sentiment that still exists in the country. Efforts to publicly condition assistance to Pakistan could actually weaken Musharraf's hand in convincing his military commanders that the U.S. is a reliable partner. President Musharraf already contends with public opposition to his support for U.S. counterterrorism goals in the region and conditioning aid through legislation would awaken memories of 1990 and weaken Pakistani public support for pursuing relations with the U.S.

Instead of conditioning aid on specific actions by Islamabad, Washington should target its assistance programs more effectively to accomplish specific goals. On the nuclear issue, the U.S. should seek to implement programs that help improve safety and security at nuclear facilities. Press reports indicate that the U.S. may already be cooperating with the Pakistanis on this front, but given Pakistani sensitivities on the issue of maintaining sovereign control of its nuclear assets, such cooperation will remain largely out of the public eye.

Perhaps over time as the U.S-Pakistan partnership solidifies, it will be possible to develop a Nunn-Lugar Cooperative Threat Reduction (CTR) program with Pakistan similar to what the U.S. has established with Russia. Potential areas for cooperation with Pakistan include nuclear reactor safety, safeguarding nuclear material, rapid response to nuclear-related emergencies, and expanded export control cooperation. The Pakistan parliament adopted export control legislation in September 2004 for nuclear and biological weapons and their delivery systems.[12]

Tailoring a CTR program of assistance for Pakistan would be challenging since Pakistan is not a signatory to the Nonproliferation Treaty. The U.S. is prohibited both by legal and treaty obligations from assisting the nuclear programs of states outside the nonproliferation regime. Another obstacle is the basic premise of the Nunn-Lugar legislation that requires recipients of CTR assistance to make "substantial investment of its resources for dismantling or destroying such weapons." It would be impossible to develop a CTR program with Pakistan along these lines

[10] Tenet, pp. 262–268.
[11] Tenet, p. 286.
[12] Richard Cronin, K. Alan Kronstadt, and Sharon Squassoni, "Pakistan's Nuclear Proliferation Activities and the Recommendations of the 9/11 Commission: U.S. Policy Constraints and Options," March 16, 2005.

without addressing the fact that Indo-Pakistani rivalry is what drives Pakistan's nuclear program.

Encourage India-Pakistan nuclear confidence building: India and Pakistan have made significant strides in their dialogue over the last three years, including the maintenance of a ceasefire along the Line of Control that divides Kashmir since November 2003; the opening of rail and bus links across their borders; and increased people-to-people exchanges. Efforts to build confidence on nuclear-related issues have been slow, however. Addressing the Indo-Pakistani nuclear issue also relies to some extent on perceived progress on resolving the Kashmir dispute as well as the status of China's nuclear programs.

Talks over the vexed Kashmir issue were expected to make progress this year following President Musharraf's announcement of forward-leaning proposals to resolve the dispute last December. However, the judicial crisis in Pakistan sparked by the Government's March 9 dismissal of the country's Chief Justice and ensuing street demonstrations have sidetracked the Musharraf government and raised concern in New Delhi about negotiating with Islamabad during the political uncertainty.

Conclusion

Preventing Pakistan's nuclear weapons and technology from falling into the hands of terrorists should be a top priority for the U.S. Revelations about the devastating impact of the A.Q. Khan proliferation network and nuclear black market will prevent Washington from considering a civil nuclear cooperation agreement with Pakistan similar to that being pursued with India. U.S. policy toward Pakistan's nuclear program should instead focus specifically on nuclear safety and security cooperation and encouraging India-Pakistan dialogue that will improve Pakistan's regional security perceptions.

Washington needs to maintain a robust partnership with Islamabad based on mutual trust and understanding. U.S. policymakers should refrain from compartmentalizing our myriad interests in Pakistan but instead integrate the various components of U.S. policy toward Pakistan. In other words, pursuing nuclear safety and security and nonproliferation in Pakistan should not be viewed as "competing" with other U.S. goals such as denying Taliban and al Qaeda safe haven on Pakistani territory; shutting down madrassahs that feed terrorist groups; encouraging peace talks with India; as well as pressing for steps toward democracy. These goals are inter-related and mutually reinforcing and will eventually encourage the country toward a stable and moderate path.

Mr. ACKERMAN. Thank each of you.

The final question to start out with, each of you, do you suspect that A.Q. Khan's network is still somehow in some fashion operating?

Mr. Fitzpatrick.

Mr. FITZPATRICK. Sir, I do not see any evidence to suggest that the network is currently operating. I believe some elements of the network are lying low and could after a period of time reconstitute themselves. I think the greater danger may be that other similar quasi-state-related networks could emerge from countries like North Korea or Iran.

Mr. ACKERMAN. Mr. Albright, do you suspect in some form the Khan network——

Mr. ALBRIGHT. I suspect that some former members are continuing doing business. We tracked one member of a company in Dubai that looked like he was putting out requests for orders of things that looked perhaps like they were for a centrifuge. This case goes back a couple of years. And we didn't have the resources to get to the bottom of it. But for us it is a lesson that—there are a lot of people that were involved in the Khan network, and only the top level was actually ever arrested or subjected to investigations. In countries like Dubai, there were no laws to break. So there was a whole collection of people there, and we suspect that they may be continuing to do black market business.

Mr. ACKERMAN. Ms. Curtis.

Ms. CURTIS. I am not privy to any information that would indicate the network is still operating, but I would share the concern that there have been no formal prosecutions in Pakistan and no punishment for the individuals that were involved.

Mr. ACKERMAN. Thank you.

Mr. Fitzpatrick, in your report it states that centrifuge parts, plans, blueprints, designs, uranium hexafluoride all were transported to North Korea on Pakistani C–130s. Is it possible that you can transport something of this nature or anything on Pakistan's C–130s without the government's approval, and at what level would those flights have to be authorized?

Mr. FITZPATRICK. I don't think it is possible to transport without some level of government knowledge. What level of approval was necessary is very hard to ascertain.

Mr. ACKERMAN. When I use the term "government," that includes the military.

Mr. FITZPATRICK. Yes, sir. We were not able to clarify whether these C–130s were actually Air Force C–130s or belonging to a company chartered by the Air Force. If they were chartered by the Air Force, and if Khan was giving the orders, it is not clear what level of government authority was required.

Mr. ACKERMAN. Where did Pakistan get their C–130s?

Mr. FITZPATRICK. I don't have the answer. Maybe the United States, but I don't know the answer.

Mr. ACKERMAN. Who else supplies C–130s?

Mr. FITZPATRICK. I think the answer is probably the United States, but I just am hesitant to state that under testimony.

Mr. ACKERMAN. If they were procured from the United States, would not their uses be restricted by the monitoring agreements for end use between the United States and Pakistan, and wouldn't those flights therefore have violated the end use monitoring agreements, assuming they were from the United States?

Mr. FITZPATRICK. I am sorry, sir, I just don't know what the end use arrangements are. But if the logic train that you are pursuing is correct, I see where you are going, and I share your concern.

Mr. ACKERMAN. Anybody else want to venture a response?

Ms. CURTIS. I think you are correct, that the end use agreements would preclude this type of cooperation. It would violate the end use agreement.

Mr. ACKERMAN. Mr. Fitzpatrick, within the report it states that Pakistan and Saudi Arabia have an alliance that requires Pakistan to come to the kingdom's aid if it is under dire threat. In exchange, the Saudis purportedly provided the money to Pakistan for their nuclear program. Could you expand on this relationship for us?

Mr. FITZPATRICK. We tried to get further information on what exactly that defense relationship would require and neither side is willing to go into detail about the relationship other than that it is an alliance relationship. Proof about the Saudi funding, although widely rumored, it is not something we could establish with confidence.

Mr. ACKERMAN. If it existed as expected, would Pakistan's protection be understood to have a nuclear umbrella?

Mr. FITZPATRICK. That is the very question that we were seeking to ascertain, and there is a reason to suspect that that might have

been part of the arrangement. In this case of the nuclear umbrella, the rumors are that the Saudis could have access to some element of the Pakistani nuclear arsenal. How that would be extended it is very hard——

Mr. ACKERMAN. Would A.Q. Khan have been a party to that discussion?

Mr. FITZPATRICK. I don't think A.Q. Khan would have been party to that. He was involved in the development of the highly enriched uranium, but not the actual weaponization or the control of the weapons—I am sorry, he was involved in some of the weaponization but not in the control of them afterwards.

Mr. ACKERMAN. Mr. Albright, your statement notes that we must reevaluate the abilities of terrorist groups to build a nuclear weapon. Would you elaborate on why you believe it is easier for terrorists to not only acquire the knowledge, but to actually construct the working nuclear device?

Mr. ALBRIGHT. One reason is that in the black market nuclear weapons design information is spreading more. Often people think it is a question of whether it is on the Internet or not. But actually it is more of a question is it out in areas where people who want to do tremendous damage can locate that.

Unfortunately, one of the remnants or one of the consequences of the Khan network has been the nuclear design information has spread more broadly than ever before. Not all that information has been located. As I mentioned in my testimony, it is the kind of information that has been digitized and very important to try to get back. I think more efforts need to be launched.

The fundamental issue facing terrorists in the near term is getting the fissile material, highly enriched uranium or plutonium. I think they are still dependent on finding that kind of material in states like Russia, perhaps Pakistan and some former Soviet states, and that is their fundamental challenge.

Unfortunately, the protection of that material isn't perfect. While it is improving, it still remains a fundamental problem to get adequate protection over this material. Also I am in the camp that doesn't think it is so easy to build a nuclear weapon. If you want to build a gun type device you will need to get around 50 kilograms of weapon grade uranium, which isn't particularly easy to do. There are still some challenges there.

If you get a more reasonable amount of material, you will be faced with trying to build an implosion type nuclear weapon. I think one of the things we have seen in assessing some of the al-Qaeda documents that were found in Kabul after the fall of the Taliban is that terrorists are probably going to be looking at simpler devices, more in line with what they could actually build but I do think that they will be driven toward implosion type weapons. And if some of this information that Khan parted with gets in their hands, it would be tremendously helpful.

Mr. ACKERMAN. Mr. Royce.

Mr. ROYCE. Thank you, Chairman Ackerman. Mr. Fitzgerald, the North Korea regime depends on a network globally to bring in about half-a-billion-dollars a year in illicit money. We know that this criminal activity involves counterfeiting, it involves drug money. But as I mentioned in my opening statement, it also in-

volves proliferation for cash. The Six-Party Talks may bring us a freeze at Yongbyon in the next few weeks on their reactor, but as reported in the "Nuclear Black Markets" report, suggests North Korea "would be able to draw upon a large and experienced transnational criminal network if it chose to continue its nuclear procurement efforts." They also say "the potential overlap between North Korea's criminal and proliferation activities (related both to nuclear and missile programs)" suggest it be able to do this.

Given that assessment, how confident are you that the February 13th agreement will truly get a handle on the nuclear program in North Korea?

Mr. FITZPATRICK. I am not very confident that the February 13th agreement will get a handle on the entire range of North Korea's proliferation activities generally or, more specifically, the nuclear program, particularly in that it does not address the nuclear weapons themselves or the plutonium holdings that North Korea has. The February 13th agreement I think is the first step toward what hopefully would be a broader agreement, as laid out in the September 2005 joint statement, which should address all of those problems, but I think we mustn't overlook the missile portion of the proliferation activity, which has not been part of the Six-Party Talks at all.

Mr. ROYCE. Well, as the next step in this process, North Korea is supposed to declare all of its nuclear activities, but I doubt we will see Daesong Group, which the report describes as being implicated in North Korea's nuclear procurement, on that list that they declare. That will be part of the problem.

You recognize in your testimony—you say, "Nonproliferation values are not universally shared," which puts it mildly. The bottom line is that the proliferation threat here is not registering in many capitals around the world, and so the steps we need to combat these global proliferation networks have to be robust export controls. That is going to require cooperation across the board in capitals around the world.

The system will only be as strong as its weakest link, and so how can we better harness international cooperation here? I am not sure if we can keep this up as fast as technology continues to move ahead. So what would be your observations on what needs to be done?

I will also ask you about the diplomatic pouch, because North Korea has used that for distributing supernotes and other activities. Is it time we started enforcing Article 31 and 41 of the Vienna Conventions on Diplomatic Relations, which state that you are not supposed to be using the diplomatic pouch for illicit profitable activities; counterfeiting operations out of your Embassies? Let me have your thoughts on that.

Mr. FITZPATRICK. Thank you very much. I think you have well summarized many of the findings in our report. The best means of channeling assistance to strengthen the weakest links in the system are the U.N. Security Council Resolution 1540's requirement that all states enact and implement export controls, and there are provisions for assistance.

The United States has a very robust program of assistance to countries, and I think this should be expanded and that other countries should be joining in.

The diplomatic pouch question is a good one, I share your concern about that. Perhaps an even more important consideration, though, is the manner in which Iran and North Korea continue to conduct cooperation, especially it is known in the missile area. If that also has extended to nuclear cooperation, it is a grave concern. Why any countries in between those two nations should be granting overflight clearance to suspect airplanes I think is a grave concern, and it is something undoubtedly under discussion with China in particular.

Mr. ROYCE. 1540's implementation is so very weak. Maybe there would be some focus on how we could do something about that.

I was going to mention my staff put together as a result of our trips to the Korean Peninsula how North Korea counterfeits United States currency, a report that took a lot of information from the Treasury Department and also cites the use of the diplomatic pouch in this record.

Let's talk about enforcement now and what can be done if we were going to seriously try to rally countries for robust action here.

Mr. FITZPATRICK. I think there should be a standard, a model law that all nations should implement. The 1540 calls on everyone to do it, but there is no standard and no universal system. I think a good starting point is to require enforcement of the escalation. If it is a Security Council mandate, as 1540 was, that should be important.

Mr. ROYCE. Should we be able to enforce that mandate?

Mr. FITZPATRICK. I don't think we individually can do it without the Security Council enforcing its own resolutions, but we can provide leadership. We, the United States, United Kingdom and other members, can provide the leadership to enforce it.

Mr. ROYCE. Lastly, Mr. Albright and Ms. Curtis, your thoughts on that.

Mr. ALBRIGHT. I think you are always going to have loopholes in export control laws. We work with businesses in Europe who are often the target of these countries. It is kind of remarkable that even though there are suppliers in developing countries, Iran, Pakistan, others come back to kind of the original suppliers of much of this proliferation-related equipment for spare parts.

Mr. ROYCE. The naiveté is truly phenomenal, isn't it?

Mr. ALBRIGHT. Some of the companies are not so naive anymore. A lot of these orders remain unanswered but what they have learned to do is send them on, to their intelligence agencies and allied intelligence agencies, and to their own government's custom authorities. It has turned out to be a remarkable way to learn information about the black marketeers, what the country is looking for.

And often the orders come not just once, but a company in Germany named Leibold, they come 25 times from different parts of the world. I think a way to complement export controls, I think it is important to get the cooperation of businesses to pass on the information that they may not normally even keep. Because many are quite ethical and they suspect it is for Iran's or Pakistan's

unsafeguarded programs, they do not just ignore it, but in effect they have learned it is better to pass it on.

In that struggle it turns out that they can still be deceived. Iran, for example, is very clever. I was involved in a case recently where they were getting items from a very responsible company via China. The lesson is that the intelligence community needs to cooperate more with these companies. In Europe you see that. In fact, this company was saved from providing all the equipment. Half got through to Iran; the other half didn't because one of the European intelligence agencies learned about it and tipped off the company.

Here that is not done very often, there has been tremendous intelligence to share information with companies. I think that needs to be resolved somehow, because if you can convince the companies to act more ethically, turn in these orders which give you names and dates and equipment ordered, then you also have to help the companies make sure they are not deceived by schemes that they can't even see through.

Mr. ROYCE. Maybe UNESCO paying for the internship programs.

Mr. ALBRIGHT. A lot has been done by these European companies, there is no doubt.

Ms. Curtis may have more thoughts on this point.

Ms. CURTIS. We should be able to leverage Chinese cooperation with regard to Pakistan. Of course China has been a proliferator to Pakistan in both missiles and nuclear technology, Pakistan trying to have a longstanding strategic relationship.

However, they do have tensions over the Islamic extremist issue, and Uighur separatists have been found to train in Pakistan along with other Islamic radical groups. So I think it is important to note that we should be able to leverage that issue better than perhaps we have in the past.

Mr. ROYCE. True, but that didn't stop them from transferring the ring magnets to Pakistan. It is a good point and I thank you, Ms. Curtis.

Mr. Chairman, thanks.

Mr. ACKERMAN. Thank you.

Chairman Sherman.

Mr. SHERMAN. One thing these hearings and so many we have had in our subcommittee has illustrated is the need for the United States to think seriously about civil defense. We are all around our tables and desks—well, some of you are too young, but some of you were old enough to remember being under your desk when the risk was an onslaught of thousands of Soviet nuclear weapons of enormous yield when it wouldn't have done us too much good and there wouldn't have been any medical care for us the day or week after.

Now we face the possibility of a small weapon hitting one of our cities and when we could zap civil defense we don't want to talk about it. That means we would have to be realistic about the threat we face. We may even want to look at how we design our cities and how that makes a city more or less vulnerable to a low yield nuclear weapon.

We have talked about Khan's alleged superstar status among the people of Pakistan and of course Musharraf every time he doesn't want to do something he says, oh, my God, you can't make me do

that, the Islamicists will take over the group and they will have the nuclear weapons. Would Musharraf face significant on-the-street reaction if he turned over to us quietly information about the non-Pakistani actors in the A.Q. Khan network?

I think you addressed that in your testimony, Ms. Curtis.

Ms. CURTIS. Turn it over to Pakistan who would turn it over to the United States?

Mr. SHERMAN. No, obviously that which Khan knows is available to Musharraf. His continued free existence is available, Musharraf is protecting him. All of the records, all these payments were made through Pakistani banks, mostly with Pakistani Government funds. Pakistan knows the very things we want to know.

The question is what reaction would there be on the street if all the information was turned over to us with the understanding that the Pakistanis involved in this nefarious scheme were beyond our access, but that this would allow us to go after those in Dubai, Europe and the United States played a role in this program?

Ms. CURTIS. I don't see that as an issue. I think the issue is giving direct access to the U.S.

Mr. SHERMAN. I trust Pakistan interrogators more than our own. I am not sure that a visit from a kindly gentleman from the U.S. Embassy is the be all and end all, although it has become the Holy Grail in this dispute.

The real question is, A.Q. Khan could just sit there and say, "Yes, come to my house, you can talk to me for 4 hours for 4 days in a row," and he may reveal absolutely nothing. There is nothing a U.S. Embassy official can do to him, maybe insult the quality of the tea he served and that is about it.

In contrast, Musharraf has all the documents. The question is why isn't Musharraf sharing with us all the information we could use to go after all the non-Pakistan actors in this network?

Ms. CURTIS. I don't know why he wouldn't be. I think——

Mr. SHERMAN. Mr. Fitzpatrick.

Mr. FITZPATRICK. Sir, I think the reason for that is that Pakistan still relies on these non-Pakistani suppliers for its own nuclear weapons program, for what it considers its national security.

Mr. SHERMAN. Would it make sense for us to make some concessions to the Pakistani nuclear program in return for getting all the files we need. It is not just what is in Khan's head, it is the paperwork, it is the orders, it is the financial records, it is the shipping documents.

Pakistan is already a nuclear power. We are not going to do anything about that. If they have 5 or 10 more nuclear weapons next year than this year it will not shake South Asia.

Why can't we reach an accommodation with Pakistan where in return for, say, everything we do, including those raw F–16s perhaps and less intense pressure from the United States not to expand their nuclear arsenal, we get the information we need to shutdown this network?

Mr. ALBRIGHT. I think it can be done. The IAEA made a deal with Pakistan to get the information that it needed on the centrifuge programs is assistance to Iran, perhaps even Libya. The problem is that it is a slow process and the IAEA carries no political weight. I think if the U.S. got behind this and you targeted it,

I think it could be very effective and it should be done. And I think it shows no damage was done to Musharraf by sharing centrifuge information with an outside entity.

Mr. SHERMAN. I think the real answer is the reason we are not getting the information is we are not putting any pressure.

Mr. ALBRIGHT. I agree.

Mr. SHERMAN. Our promise is to give Musharraf what he wants all the time without getting anything in return.

Mr. ALBRIGHT. In the prosecutions, the top people aren't talking. I can name the accused— Lerch, Griffin, Wisse—in South Africa, they are not talking at all. People below them are talking and these three may end up being prosecuted successfully. It is incredibly important to get information out of Pakistan, because they know all about what happened and the top guys who we hoped would talk have not talked. Getting the information from Pakistan may be the only way to get the answers.

Mr. SHERMAN. We need the answer from Pakistan and the idea it all is in a person's head belies the fact with today's commerce and electronics, if you have the documents and e-mails, that is more valuable than an interview, particularly with a reluctant witness.

Let's turn to Dubai, at the UAE.

Mr. ACKERMAN. Will the gentleman yield?

Mr. SHERMAN. Yes.

Mr. ACKERMAN. Fascinating line of questioning, Mr. Chairman. If I could venture a different answer, perhaps Musharraf isn't protecting A.Q. Khan, perhaps A.Q. Khan is protecting Musharraf. The answer to my question previously about the C–130s, I have subsequently found out that nobody else produces them but us, so they came from us. And Musharraf was for a good part of that term the head of the Army while that equipment and material was being transferred to North Korea and perhaps that is why, just perhaps.

Mr. SHERMAN. I think it is obvious that it is the Pakistani Government, not some guy in a basement that is responsible for the A.Q. Khan program. It is the Pakistani Government program. And we already know about the past sins and we know which government is responsible for them. The real question is will that government that claims to be an ally of ours now continue to get everything they want from us without sharing information that is not all that detrimental to them.

Shifting to the UAE, we know that when much of this went on the UAE was an open door and a great financial and shipping center. Now they know what went on, are they cooperating with us and have they bothered to pass laws against proliferation?

Mr. ALBRIGHT. They have passed export control laws. I think they are cooperating, but it is not that easy. There isn't a lot of leverage. If the person didn't break any laws, how do you get them to talk? So I think it has not been as fulfilling or there has not been as much information generated as I would have thought.

Mr. SHERMAN. Is there anything in the UAE constitution that prevents an ex post facto law? I don't think they have a constitution let alone a provision against ex post facto laws, and while I am sworn to protect the U.S. Constitution, there is nothing in there

about other countries having ex post facto laws. Have we even asked the UAE to pass some retroactive laws?

Mr. ALBRIGHT. I don't know.

Mr. SHERMAN. We try to give everything they want, asking for little or nothing in return, including our ports.

Turning to Pakistan's motivations, they provided a lot of this technology to Iran. Did they do so solely for money or is there evidence of ideologic motivation in Pakistan to support the Iran nuclear program notwithstanding the dispute that they had over the Taliban during the nineties?

Ms. CURTIS. I deal with this in my written testimony and yes, I don't see any ideological motivation, and I know Mr. Fitzpatrick is much more familiar with the details, but my understanding is with regard to the Iran issue that it is not clear if the government was aware of what was happening or everything that was happening. I think if you look at the tensions between Pakistan and Iran in, like you said, in the mid-nineties, Pakistan's support for the Taliban was a tremendous source of tension between the two governments. It is hard to imagine Pakistan would have officially sanctioned nuclear cooperation with Iran.

Mr. SHERMAN. If you are getting all of your money from Saudi Arabia and giving nuclear technology to Iran, I don't think the Saudis would be all that happy.

Mr. Fitzpatrick.

Mr. FITZPATRICK. Thank you. Just to elaborate on Ms. Curtis's response, I think in the case of enrichment technology that went to Iran, the degree of Pakistani complicity ranges across a spectrum. In the case of North Korea there was much more obvious government involvement, there was obvious encouragement on the part of Pakistan leaders. Khan's motivations were more financial and the money seems to have gone to his pocket, plus members of his network who were overseas. That is one of the reasons why the government may not have been fully knowledgeable about everything.

There was complicity and some degree of knowledge, but not total authorization.

Mr. SHERMAN. You talked about Saudi Arabia financing this program and getting the promise of a nuclear umbrella in return. This seems peculiar from a Saudi perspective in that a promise from Musharraf will last at least as long as Musharraf remains in power, and I am not sure the Saudis are anxious to put their whole national security on that.

Maybe the Saudis were allowed to smell and look at some of the nuclear technology. If the Saudis are providing the money, why didn't they get a few bombs or have—has Pakistan delivered bombs to Saudi Arabia and why would the Saudis finance this program if all they got was a promise of future protection from a man who may or may not be in power 2 years from now or 20 years from now?

Mr. FITZPATRICK. The Saudi financing is not confirmed, so we are speaking somewhat hypothetically here.

Mr. SHERMAN. I understand that.

Mr. FITZPATRICK. If what is rumored was true, they provided money with the expectation or understanding that Pakistan would

be there for them in the case of a dire situation—that is what a nuclear umbrella is all about. So maybe that was enough for them, but I don't think there is any evidence of Pakistan supplying any nuclear weapons to Saudi Arabia or any nuclear technology.

Mr. SHERMAN. If I am paying for an umbrella, I want to hold it myself. Having an umbrella in someone else's hands that they say they will hold over my head has sometimes gotten me wet.

You have all of these suppliers. In the business world you tend to deliver goods net 30, so you have to know your customer, because your customer is supposed to pay you. It is a dead giveaway when a company says we don't trust you to pay us so give us the money up front. Most of these transactions by these allegedly innocent suppliers, transactions in which they got their money up front or they waited 30 days after delivery to get paid?

Mr. ALBRIGHT. Most were normal commercial transactions, whether legal or illegal or whether the company knew or did not know.

Mr. SHERMAN. Do you know whether that included normal, meaning we ship and wait for payment, or would there be letters of credit?

Mr. ALBRIGHT. There would be letters of credit.

Mr. SHERMAN. They are not relying upon the creditworthiness of the purchaser?

Mr. ALBRIGHT. Yes.

Mr. SHERMAN. I think I have gone long enough. I yield back.

Mr. BOOZMAN. In Iraq where you are in a situation where really at first and even now with really kind of crude devices and yet very effective devices, the bomb makers have kind of been able to kind of craft things together where they can split an Abrams tank.

I know that if somebody were to build a nuclear device and it was a nuclear device like one we would have in stock, then you are really talking about billions of dollars to get that program going. But when you think in terms of what the Iraqi, or wherever they have come from, bomb makers have done, it is really not that difficult or that expensive, is it, in the sense that there appears from your testimony some of the fuel is floating around this and that. Once you have that and you have a device where you don't have to worry that it works all the time, you only have to worry that maybe it blows up a little early, that is a fairly easy thing to do.

I guess what I am asking is are you surprised that somebody—and again there is the scientific minds floating around out there that have that ability,—are you surprised that somebody, not a high yield, maybe a low yield that would kill 30, 50,000 people. Are you surprised that somebody hasn't been able to mastermind that and pull that off already and what are the chances of that coming about in the next few years?

Mr. ALBRIGHT. I don't think it is that easy to do, first of all. You have two problems, one, getting the nuclear explosive material, and then fashioning a device. And Russia has very big problems in the physical protection of material and it has a lot of fissile material. Some has leaked out. Heads of the CIA have testified that some is missing, they believe. We don't know how much, but some material has already leaked out.

But maybe I am surprised that more hasn't leaked out, but I am also thankful. It gives us more time to fix the problem. But in terms of making the device, there have been some analysts who have kind of said terrorists will never build an implosion device, they will build a gun type. I will say they probably are thinking about building a range of nuclear weapons. They will be trying to build them in a creative way and come up with a design within their capability to build.

So it may surprise us by its actual design and it may not meet any of our standards, and it could be a lot cheaper. But I still believe it is not easy to do and I can't put a probability on their success. I hate to do that because I am a scientist and I could say the probability is 10 to the minus 3 and you would say that is 1/1000ths of a chance of happening in the next 5 years. From my point of view, that would be a very big risk because the consequences would be so catastrophic.

When you look at reactor safety, you are trying to drive the risk down way beyond 10 to the minus 3 and you take extraordinary steps to improve the safety of reactors.

So I think the same thing applies even more in the case of a nuclear weapon. I think the risk may be small, although I would say it is very difficult to quantify, but nonetheless the consequences are so great that we have to do more to try to prevent it from happening, and I think Ms. Curtis brought up Pakistan and the leakage of information or the potential linkage and we looked carefully at what Mahmoud and Majid did with al-Qaeda, and that effort was fortunately stopped inadvertently by the war. They may not have been nuclear weapons experts, but Mahmoud particularly was at the birth of the Pakistani nuclear weapons program and he knows lots of people who were experts in nuclear weapons and he could have provided a great deal of information to al-Qaeda and a great deal of guidance.

So I think you do have to worry a great deal about what is happening in Pakistan and worry that somehow somebody will get the fissile material and will be thinking of clever ways to make a simple nuclear device and then seek to use it.

Mr. FITZPATRICK. If I may add briefly, in our report we assessed the availability of nuclear material. As David mentioned, you need about 50 kilograms for the simpler gun type weapon, which is much easier than an implosion device. There is some disagreement in the scientific community about how easy it would be and deliverability is another way. Some terrorist experts say the easiest way would be for terrorists to construct a gun type device in the city where they intend to use it so they don't have to worry about the delivery of it. You still need 50 kilograms.

The total amount of nuclear material that has either been seized through stings, or so forth, comes to about 8 kilograms of highly enriched uranium over the past 12 years. Now maybe that was only the tip of the iceberg or maybe there is not as much loose nukes that are so easy to get as some are concerned about. Certainly there is a lot of fissile material that is not as secured as it should be. The world needs to take steps to secure it all very tightly.

Mr. BOOZMAN. If a country like Pakistan gives them the material that they need for a bomb, how much can they produce? How long does it take to produce the quantities that you are talking about?

Mr. FITZPATRICK. Well, Pakistan has sufficient plutonium for around 100 nuclear weapons. It is not so much a matter of how long it would take them to produce it, but how secure is the fissile material in their possession.

Mr. BOOZMAN. They actually have it and the capability to produce more?

Mr. FITZPATRICK. That is correct. Their capability to produce more is increasing.

Mr. BOOZMAN. With a country like that, how do you know what is missing and what is not missing?

Mr. FITZPATRICK. Other countries don't know because that is Pakistan's highest crown jewel, but we assessed Pakistan's degree of command and control over its nuclear assets. We have some confidence that the current Pakistani Government and military leadership is committed and able to secure its assets. Whether this security would last through successive changes of leadership is yet to be seen.

Mr. ALBRIGHT. One thing, we did these estimates and I continually forget them. I would think our estimate is about a ton of weapon grade uranium produced by Pakistan. They are producing increasing amounts of plutonium.

I am actually worried what could happen, because the threat you worried about is an insider threat. Usually countries can learn how to put up the fences and have the guards and resist outsider attacks, it is not impossible to do it. But the threat you worry about is from the insider and you know very little about what is going on in Pakistan, and you have a lot of disloyal people potentially.

I don't think we have much assurance about how good it is in Pakistan. And they are developing the amount of material where it could become a target.

Mr. BOOZMAN. I guess that is my point. We really don't know what is going on, but it does seem like if we would have had a group come and testify before the outset of the Iraqi war, none of us would have believed that the bomb makers would have been able to do things as efficiently as they have done, very crude devices as being very effective, and that might not be a good analogy, but I really do think that is a tremendous worry.

Thank you, Mr. Chairman.

Mr. ACKERMAN. Thank you.

Mr. Berman.

Mr. BERMAN. Thank you, Mr. Chairman.

Perhaps David Albright could just educate me. Remind me what the concept of the nuclear umbrella is. Is it that a nuclear power offers protection to a country in the event that it is attacked or that it uses its nuclear weapons against the country that makes the attack?

Mr. ALBRIGHT. Maybe you should ask Mark. I will add my two cents. But I think this is a big question in regard to Saudi Arabia and Pakistan. There are all kinds of nuclear umbrellas. Japan I think feels that we would defend it in case of attack, but we would not give them nuclear weapons. The NATO nuclear umbrella in-

cluded that in the event of a war a non-nuclear weapon state like Germany would have its finger on the button with us and as the war developed they would have operational control of nuclear weapons. And so the question with Saudi Arabia and Pakistan is what was discussed? What did Khan discuss? He traveled the world and he made offers to a lot of countries. We don't know much about those discussions. What is actually going on?

So I think your question gets to the heart of the matter. Something is going on between Pakistan and Saudi Arabia. Some discussions have happened, but we don't know if it involves the transfer of nuclear items at the key moment or Pakistan is stepping in to defend Saudi Arabia at a key moment, or Saudi Arabia is giving the money and figuring later if they need it they will develop their own nuclear fuel cycle perhaps with the help of Pakistan and have an indigenous capability to make nuclear weapons.

Mr. BERMAN. It is hard to understand that it was about Pakistan armed forces coming to the aid of Saudi Arabia in the event of an attack.

Mr. ALBRIGHT. Definitely.

Mr. BERMAN. Ms. Curtis, I was curious, you are suggesting a United States effort to help the safety and security of Pakistan's nuclear weapons program. Does such an effort contravene either the nonproliferation treaty or U.S. law as it now exists?

Ms. CURTIS. I think that would definitely be a concern. I think there are certain things that are possible, limited activities that are possible, but that is definitely a major constraint on being able to do something with Pakistan. Of course you also have Pakistan's own sensitivity and any sort of open effort I think they would be very leery about pursuing because of the sensitivity of the nuclear program.

Mr. BERMAN. You are not suggesting a covert operation——

Ms. CURTIS. Not at all, no, no, no.

Mr. BERMAN. That would violate our laws?

Ms. CURTIS. Not at all.

Mr. BERMAN. What are you saying?

Ms. CURTIS. I am pointing out the obstacles that would be inherent in a CTR program.

There could be hope to overcoming the obstacles if we deem it is an important enough issue to deal with. As my colleagues have highlighted, the problem in Pakistan is really getting the leadership to focus on the problem and to acknowledge some of the risks. I think we saw this with the case of the two former PAEC officials that were known to have met with Osama bin Laden. At first the Pakistan authorities didn't even want to believe this had happened or were very skeptical. So I think it is incumbent on the U.S. to make clear to their leadership and to get them cooperating with the U.S., to focus on the problem, which could effect both of us in the long run.

Mr. BERMAN. So in that context you are saying it is simply a matter of United States leadership to persuade Pakistan to do things to strengthen the safety and security of its nuclear weapons program?

Ms. CURTIS. I think that is certainly an important part of it.

Mr. BERMAN. What is Pakistan's reaction to our pushing for a civilian nuclear cooperation program with India?

Ms. CURTIS. I think definitely they are concerned. I think they are concerned that this would result in India increasing its weapons program, despite the fact that this is not the Indian intention, but I think certainly the Pakistanis are very skeptical about that, and so I think this is a great deal of concern. Publicly they said it is discriminatory, they should be allowed to have a similar program, but as I pointed out in my oral statement, this is something I just don't think the U.S. is going to consider particularly in light of the A.Q. Khan debacle.

Mr. BERMAN. Mr. Fitzpatrick.

Mr. FITZPATRICK. I had raised my finger. Pakistan's major point is that they want what India gets. They don't want to be treated, in their words, in a discriminatory fashion, but they do realize that the cloud of A.Q. Khan does cast a shadow.

Mr. BERMAN. Play out for us what happens when the nuclear suppliers group is asked to essentially sanction civilian nuclear technology going to India with China and its relationship with Pakistan. Mr. Albright?

Mr. ALBRIGHT. China is going to provide items to Pakistan, sell them more reactors. We are worried about whether they will transfer "civil reprocessing technology, whether Pakistan will increase its enrichment capability." I am sure Pakistan is not going to sit by and watch the deal happen between the United States and India without trying to lock in a deal with China to increase its capacity.

Mr. BERMAN. They are members of the Nuclear Suppliers Group. If they can't do it——

Mr. ALBRIGHT. If the United States can do it with India, China can do it with Pakistan if the NSG signs off on it.

Mr. BERMAN. And China won't sign off on us doing it with India unless we sign off on them doing it with Pakistan; is that what you are saying?

Mr. ALBRIGHT. It could be part of the discussion.

Mr. FITZPATRICK. I think the China part of the equation has another aspect to it in that they have a grandfathering concept that they may believe—China that is and Pakistan may believe they have an agreement that is grandfathered under the terms of China's membership, that precedes China's membership in the Nuclear Suppliers Group.

Mr. BERMAN. So when China was violating the Nuclear Nonproliferation Treaty by providing Pakistan with technology before they adjoined the Nuclear Suppliers Group, that improper conduct is grandfathered by virtue of the fact that the relationship existed before they joined the Nuclear Suppliers Group; is that sort of it?

Mr. FITZPATRICK. I wouldn't characterize myself that China's assistance was in violation of the NPT. But that is the gist of it, yes. They would say that what they did before they became NSG members, is they had an agreement that would allow them to provide additional assistance now so that the Nuclear Suppliers Group wouldn't have to specifically endorse any new agreement, it would be grandfathered. This is the rationale they may utilize.

Mr. BERMAN. Is there a serious question about whether China's role in helping Pakistan getting nuclear weapons program was

compliant with their obligations under the Nuclear Nonproliferation Treaty?

Mr. ALBRIGHT. The worst thing they did was provide Pakistan with nuclear weapons designs and training in nuclear weapons. We understand they gave them components, not the critical core perhaps but maybe they gave them highly enriched uranium. They hadn't signed the NPT at that time.

Mr. BERMAN. I see.

Mr. ALBRIGHT. Some of the other systems after they did sign the NPT was also questionable, and they have cut back many of those activities.

I think Mark is saying there is no evidence of some export currently that is in violation of these commitments. The grandfathering affects the power reactors, it doesn't affect reprocessing and heavy water production reactors and things like that, and you could see some assistance. If for example, if Pakistan could say, well, this isn't a military production reactor at our site, we may want to build a fourth one, it is possible China could step in and provide assistance to make the reactor bigger and better. It is something to watch.

I think I testified in front of this committee I am not a fan of the United States-India cooperation deal because of the proliferation deal inherent in it. I think there are also risks of having a race for nuclear capability which ultimately will play out. We will be facing a triad of nuclear weapons arsenals and probably substantial arsenals.

Ms. CURTIS. I think the key is there has to be consensus at the NSG. With regard to the United States-India cooperation agreement Congress was very intent on ensuring that the consensus issue was verbal, a part of the agreement. So when it comes to China-Pakistan, I think that is the important thing to remember.

Just to point out, the Chinese President visited Pakistan last fall. There was hype before the visit over whether there would be a nuclear package offered to Pakistan. In the end there was a pledge of general support for Pakistan's program, but no offers of new technology. I think it is a bit more complex than perhaps people realize when it comes to decisions that China will actually follow through on.

Mr. BERMAN. Thank you, Mr. Chairman.

Mr. ACKERMAN. Ms. Jackson Lee.

Ms. JACKSON LEE. Thank you very much, Mr. Chairman and to the witnesses. Certainly we can cite some good news that Pakistan and India have had over the past couple of months, couple of years, a dialogue, which certainly speaks to some brief relief in the region.

My perspective is that any nation that has the capacity for nuclear proliferation should be of concern to the United States, ally or foe. As I listen to the discussion, I believe this is an important hearing, but I think that we will have to begin to do something more than, if you will, speak about what the concerns are. We are creating the record, but the question is: What are the action items that need to be promoted?

We understand that the Bush administration in Pakistan believe that Mr. Khan is either shut down, impotent or standing down. And so I have a brief question that I know has probably been ex-

plored by my colleagues, but I wanted to simply get a brief yes or no.

Ms. Curtis, is that accurate?

Ms. CURTIS. I am sorry, can you repeat the question?

Ms. JACKSON LEE. Am I not being heard?

Ms. CURTIS. I just didn't catch the very last part.

Ms. JACKSON LEE. Is the Khan program shut down or is it impotent, is it standing down? Yes or no?

Ms. CURTIS. To my knowledge I don't know of any further activity that is happening, but I have raised my concern about the fact that there have been no prosecutions in Pakistan and no punishment for the individuals. So I think there is a possibility of elements of the network reactivating in the future. So at this time I am not aware of any activity, but I defer to my colleagues.

Ms. JACKSON LEE. Thank you. Mr. Albright.

Mr. ALBRIGHT. Khan grew out of Pakistan's illicit procurement effort. That continues. Khan probably stepped down from any leadership of that effort in 2001.

Ms. JACKSON LEE. But the actions or remnants of his work is now spread among others in Pakistan or elsewhere?

Mr. ALBRIGHT. I would say Pakistan continues its illicit procurement effort for itself. We can't account for all the members of the Khan network. We worry that people who were involved——

Ms. JACKSON LEE. Where do you get your data from in terms of accounting for the other network? What you are saying is that Khan is not functioning but there is a network functioning?

Mr. ALBRIGHT. We estimate 30, 40 people were involved in some significant way. You try to find out who they are, and we worry that people in Dubai—they weren't the top level or the second level——

Ms. JACKSON LEE. They still exist.

Mr. ALBRIGHT. They still exist.

Ms. JACKSON LEE. They have the written science. Do they have the paperwork or do they have the materials?

Mr. ALBRIGHT. They would be doing business, so they would be buying and selling.

Ms. JACKSON LEE. Buying the materials in order to make——

Mr. ALBRIGHT. To sell to somebody. They would act as trading companies.

Ms. JACKSON LEE. Mr. Fitzpatrick.

Mr. FITZPATRICK. I am not aware any members of the Khan network are involved in proliferation today. I expect some of the supply companies that provided Pakistan and the other proliferators with some dual use materials may still be in business and could emerge in the future. I am even more concerned though about other kinds of quasi-state proliferation involving individuals or entities in North Korea, Iran or other countries.

Ms. JACKSON LEE. Let me follow up on that point. Did Dr. Khan sell to Iran and North Korea directly?

Mr. FITZPATRICK. He directly sold to North Korea, Iran, Libya and offered to Iraq and possibly other countries.

Ms. JACKSON LEE. Is his network still doing that now?

Mr. FITZPATRICK. I don't think his network is doing that now, but some of the companies that he bought from may still be in some kind of business.

Ms. JACKSON LEE. Let me as we have to head for the floor, let me say this and acknowledge that oversight that this committee is doing is vital, but I think what is missing in what I have heard in your testimony is a solution.

Ms. Curtis, I think it is frankly important to have prosecution of those who might have violated international law and are still without prosecution, but I think we have to look to the Bush administration. Frankly, we have been enormously distracted by the Iraq war. In the beginnings of friendship which we have tried to reestablish with Pakistan, which I believe it is important not to label Pakistani people who are simply trying to find their own place in democracy and fair elections and educational system. We don't want to tip, rock the boat. They are our good friend, they are. We wouldn't solve the problem face-to-face acknowledging the fact that you have been a friend and ally and we want you to continue. President Clinton opened the door to that friendship in his first visit toward the end of his tenure. That was the first time I believe an American President had been in Pakistan and visited with President Musharraf, but the administration continues to deny there are concerns but yet not sit down in bilaterals and begin to address this.

Can I just get, as I make this my last question, a yes or no that we need to do a face-to-face on these issues? Ms. Curtis.

Ms. CURTIS. I think there are probably face-to-face meetings happening between the administration and President Musharraf over the A.Q. Khan issue, so I——

Ms. JACKSON LEE. You don't have any evidence? Mr. Albright, going forward, do you think we need to have some very strong public bilaterals?

Mr. ALBRIGHT. And whether the United States puts pressure on Pakistan to produce results and is willing to if they don't——

Ms. JACKSON LEE. Mr. Fitzpatrick?

Mr. FITZPATRICK. I think that strong private bilaterals are what are called for.

Ms. JACKSON LEE. Those are solutions that you offer to us. I thank you. I yield back.

Mr. ACKERMAN. In answer to the gentle lady's question, President Clinton was preceded by President Eisenhower, who drove with President Khan through the streets of Karachi on an open horse drawn carriage.

Ms. JACKSON LEE. That is an excellent history. I don't think President Clinton was able to do a horse drawn, but that is wonderful history. Thank you.

Mr. ACKERMAN. I don't think President Musharraf can do that either.

I want to thank the panel for their excellent testimony and the work you do following this issue. It is of critical importance to us. Thank you, and the committee stands adjourned.

[Whereupon, at 4:08 p.m., the subcommittees were adjourned.]

APPENDIX

MATERIAL SUBMITTED FOR THE HEARING RECORD

PREPARED STATEMENT OF THE HONORABLE SHEILA JACKSON LEE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. Chairman, thank you for convening this hearing. Not only is the subject of nuclear proliferation of the utmost importance, it is also extremely timely in today's era of ongoing tensions combined with frightening modern technologies. May I also thank the Ranking Member, and welcome our distinguished panel of witnesses: Mr. Mark Fitzpatrick, Senior Fellow for Non-Proliferation, International Institute for Strategic Studies; Mr. David Albright, President, Institute for Science and International Security; and Ms. Lisa Curtis, Senior Research Fellow, Asia Studies Center, The Heritage Foundation. I look forward to your informative testimony.

Mr. Chairman, arms control remains a crucial aspect of U.S. foreign policy. Pakistan has proven a vital ally in the U.S.-led war on terrorism, and it must be a partner in efforts to curb nuclear proliferation. An integral part of these efforts must be securing and maintaining Pakistani support and cooperation for regional and global anti-terrorism efforts. Additionally, the United States must work together with Pakistan to conclusively shut down the global smuggling ring run for many years by Pakistani metallurgist Abdul Qadeer Khan.

The complete extent of A.Q. Khan's network is still not known. The global smuggling operation has its roots in the 1970s. While working to develop nuclear technology for his native Pakistan, where he has been celebrated as the "Father of the Pakistani bomb," Khan also sold nuclear technology to numerous countries, including Iran, Libya, and North Korea. According to reports, this network was run out of Pakistan, and Mr. Khan remained on the Pakistani government payroll. His network had operatives in Europe, the Middle East, and Africa.

According to reports, Khan's network dealt in a wide range of technology, from blueprints and components to full centrifuge assemblies. Among other things, Libya received a complete nuclear weapons design. Khan carried on dealings with Iran until at least the mid-1990s, with Libya until 2002, and with North Korea possibly through 2003.

A.Q. Khan confessed in February 2004 to involvement in a global network that sold crucial nuclear weapons technology and uranium enrichment materials to rogue states. Pakistani leaders have professed no knowledge of this network, a claim taken on faith by the Bush Administration. The Administration has been criticized for being slow to uncover Khan's activities, during which time rogue regimes, including Iran, were able to purchase critical nuclear technologies.

After Khan's illicit nuclear smuggling network was exposed in 2004, President Musharraf issued a pardon, citing Khan's contributions to his nation. This pardon was later called "conditional," and subject to future review. Musharraf promised to share all information about Khan's proliferation network with President Bush, but has refused to allow American or international investigators any direct access to Khan.

In May 2006, immediately following the release of nuclear scientist and suspected Khan collaborator Mohammed Farooq, Musharraf's government declared the case closed, and assured the U.S. and other foreign governments that "appropriate action" had been taken to fully dismantle the network. To date, no Pakistani participants, including Khan, have faced criminal charges in this case.

Khan has made a great deal of money through these transactions, which he has been allowed to keep. It has been estimated that his personal wealth has reached as high as $400 million.

Whatever Pakistan's past record with regards to nuclear proliferation has been, most experts have commended the nation's recent efforts to secure Pakistan's stra-

tegic arsenal. Independent organizations have noted that Pakistan's reforms have been transparent and apparently successful. While Khan appears to be currently out of business, many analysts believe the network is either still active or capable of becoming active in the future.

A recently released report by the influential London-based think tank International Institute of Strategic Studies (IISS) states that Khan's network is still very much in business and actively involved in proliferation. One of the authors of this report stated "In this case decapitating the head does not mean the body is dead. Khan's network was horizontal and in many ways self-supporting. He may have been the dealmaker, but many of his contacts have been able to organize their own deals."

The exposure or the network was a major success in global efforts to fight nuclear proliferation. However, it also revealed serious deficiencies in export control regimes, and has called into question many nations' commitment to nuclear nonproliferation. I believe that much work remains to be done in the fight to control these dangerous weapons.

I look forward to today's testimony, which I hope will speak to the true state of the Khan network, as well as the potential complicity of any Pakistani government or military officials. Thank you, Mr. Chairman, and I yield back the balance of my time.