



USAF COUNTERPROLIFERATION CENTER  
**CPC OUTREACH JOURNAL**  
Maxwell AFB, Alabama

---

---

Issue No. 309, 5 January 2004

**Articles & Other Documents:**

[Banned Arms Flowed Into Iraq Through Syrian Firm](#)

[Nuclear Program In Libya Detailed](#)

[Libya's Atom Bid in Early Phases](#)

[A Nuclear Headache: What If The Radicals Oust Musharraf?](#)

[N. Korea Has Mixed Message On Talks](#)

[A Policy Of Prevention](#)

[Finding May Help Fight Anthrax Toxin, Scientists Say](#)

[Sleuths Patrol Nations For Nuclear Mischief](#)

[F.D.A. Rules Shots Effective For Anthrax That Is Inhaled](#)

[U.N. Nuclear Agency Says No U.S. Help Needed In Libya](#)

[Giving Up Those Weapons: After Libya, Who Is Next?](#)

[From Rogue Nuclear Programs, Web Of Trails Leads To Pakistan](#)

[If The Bomb Is So Easy To Make, Why Don't More Nations Have It?](#)

[Nuclear Bomb Closer Than IAEA Believed](#)

[Lessons From Libya](#)

[Saudi Nukes](#)

---

Welcome to the CPC Outreach Journal. As part of USAF Counterproliferation Center's mission to counter weapons of mass destruction through education and research, we're providing our government and civilian community a source for timely counterproliferation information. This information includes articles, papers and other documents addressing issues pertinent to US military response options for dealing with nuclear, biological and chemical threats and attacks. It's our hope this information resource will help enhance your counterproliferation issue awareness.

Established here at the Air War College in 1998, the USAF/CPC provides education and research to present and future leaders of the Air Force, as well as to members of other branches of the armed services and Department of Defense. Our purpose is to help those agencies better prepare to counter the threat from weapons of mass destruction. Please feel free to visit our web site at [www.au.af.mil/au/awc/awcgate/awc-cps.htm](http://www.au.af.mil/au/awc/awcgate/awc-cps.htm) for in-depth information and specific points of contact. Please direct any questions or comments on CPC Outreach Journal Jo Ann Eddy, CPC Outreach Editor, at (334) 953-7538 or DSN 493-7538. To subscribe, change e-mail address, or unsubscribe to this journal or to request inclusion on the mailing list for CPC publications, please contact Mrs. Eddy. The following articles, papers or documents do not necessarily reflect official endorsement of the United States Air Force, Department of Defense, or other US government agencies. Reproduction for private use or commercial gain is subject to original copyright restrictions. All rights are reserved

Los Angeles Times  
December 30, 2003  
Pg. 1

**Banned Arms Flowed Into Iraq Through Syrian Firm**

*Files found in Baghdad describe deals violating U.N. sanctions and offer a glimpse into the murky world of weapons smuggling and the ties between 'rogue states.'*

By Bob Drogin and Jeffrey Fleishman, Times Staff Writers

DAMASCUS, Syria — A Syrian trading company with close ties to the ruling regime smuggled weapons and military hardware to Saddam Hussein between 2000 and 2003, helping Syria become the main channel for illicit arms transfers to Iraq despite a stringent U.N. embargo, documents recovered in Iraq show.

The private company, called SES International Corp., is headed by a cousin of Syria's autocratic leader, Bashar Assad, and is controlled by other members of Assad's Baath Party and Alawite clan. Syria's government assisted SES in importing at least one shipment destined for Iraq's military, the Iraqi documents indicate, and Western intelligence reports allege that senior Syrian officials were involved in other illicit transfers.

Iraqi records show that SES signed more than 50 contracts to supply tens of millions of dollars' worth of arms and equipment to Iraq's military shortly before the U.S.-led invasion in March. They reveal Iraq's increasingly desperate search in at least a dozen countries for ballistic missiles, antiaircraft missiles, artillery, spare parts for MIG fighter jets and battle tanks, gunpowder, radar systems, nerve agent antidotes and more.

The Bush administration accused Damascus in March of sending night-vision goggles and other military equipment into Iraq, but U.S. officials now say the White House was unaware of the extent of the illicit weapons traffic.

Other gaps in Washington's efforts to stem the flow of black-market weapons and missile technology to outlaw states emerged this month when Libya revealed that it had procured medium-range missiles and prohibited nuclear technology despite U.S. and U.N. sanctions.

The Syrian Foreign Ministry did not respond to numerous faxes and telephone calls asking for clarification of SES's activities. SES also has not responded to requests by The Times for an interview. In an e-mail Monday, the company termed "false" any suggestion that it was involved in illicit trade but did not address any of the specific cases.

The White House previously has accused Syria of sheltering fugitives from the ousted Iraqi regime, of letting Islamic militants cross into Iraq to attack coalition forces, and of refusing to release at least \$250 million that Hussein's regime stashed in Syrian banks.

Files from the Baghdad office of Al Bashair Trading Co., the largest of Iraq's military procurement offices, provide no new evidence about chemical, biological or nuclear weapons in Iraq. And not every contract for conventional weapons was filled.

But the successful deals — such as the delivery of 1,000 heavy machine guns and up to 20 million bullets for assault rifles — helped Baghdad's ill-equipped army grow stronger before the war began in March. Some supplies may now be aiding the insurgency against the U.S.-led occupation.

And the files reviewed by The Times — about 800 pages of signed contracts, shipping manifests, export documents, bank deposits, minutes of meetings and more — offer a rare glimpse into the murky world of international arms smuggling and the ties between countries such as Syria and North Korea, which the administration calls "rogue states," and the ousted Iraqi regime. The documents illustrate the clandestine networks and complex deceptions Iraq used to evade U.N. sanctions and scrutiny by U.S. intelligence. Those include extensive use of front companies, sham contracts, phony export licenses, kickbacks and money laundering schemes.

A three-month investigation by The Times has found:

- A Polish company, Evax, signed four contracts with Iraq and successfully shipped up to 380 surface-to-air Volga/SA-2 missile engines to Baghdad through Syria. The last batch was delivered in December 2002, a month after the U.N. Security Council warned Iraq that it faced "serious consequences" if it continued to violate U.N. resolutions.
- South Korea's Armitel Co. Ltd. shipped \$8 million worth of sophisticated telecommunications equipment for what Iraqi documents said was "air defense." The company is now submitting bids to the U.S.-led occupation authority for contracts to improve telephone and Internet service from Baghdad to Basra.
- Russia's Millenium Company Ltd. signed an \$8.8-million contract in September 2002 to supply mostly American-made communications and surveillance gear to Iraq's intelligence service. The company's general manager in Moscow later wrote to suggest "the preparation of a sham contract" to deceive U.N. weapons inspectors, documents show.
- Slovenia's STO Ravne company, then a state-owned entity, shipped 20 large battle tank barrels identified as "steel tubes" to SES in February 2002. The next month, Slovenia's Defense Ministry blocked the company from exporting 50 more tank barrels to Syria. Overall, STO Ravne's secret contract called for delivering 175 tank barrels to Iraq.
- Two North Korean officials met the head of Al Bashair at SES offices in Damascus a month before the war to discuss Iraq's payment of \$10 million for "major components" for ballistic missiles. U.S. intelligence agencies were unaware of the deal at the time, or of a meeting 10 months earlier in which Iraqi officials authorized a \$1.9-million down payment to Pyongyang through SES.
- Massachusetts-based Cambridge Technology Inc. sold four optical scanners, which can be adapted to help divert laser-guided missiles, to a student in Canada. He had the equipment shipped to Amman, Jordan, and told the company he was donating it to a university whose name he now says he cannot remember. Without the U.S. company's knowledge, the real buyer was the Iraqi military.

Iraq's Al Bashair Trading Co. handled all those deals and scores of others. Its English-speaking director-general, Munir A. Awad, fled to Syria during the war and now is living there "under government protection," according to an intelligence report in Washington.

Filling an entire floor of a dingy downtown Baghdad office building, Al Bashair was the largest of 13 known companies, including an Iraqi intelligence operation called M-19, that Hussein's military used to evade the U.N. arms embargo and other sanctions, according to a confidential U.N. report on Iraq's procurement networks. Al Bashair had special status, however. Hussein personally ordered the company to deal directly with foreign brokers and suppliers, the U.N. report notes. It estimated the value of Al Bashair's sanctions-busting deals at between \$30 million and \$1 billion a year in the 1990s. Al Bashair also served another key role: It helped launder and hide vast sums of cash for the Iraqi dictator and his closest aides.

Three Al Bashair contracts from 1993 to 1995, for example, indicated that Iraq had purchased \$410 million, \$500 million and \$1.2 billion worth of sugar. U.N. inspectors found that most of the money was diverted to banks in Panama, the Bahamas and Monaco.

"The deals for sugar were a way to get money out of Iraq," said a former U.N. inspector who studied the scam. "They would pay \$10,000 to a trade company for \$100 of sugar. And the rest of the money went into offshore accounts."

The U.N. Security Council imposed comprehensive sanctions after Iraq invaded Kuwait in 1990. They included a full arms embargo, a trade ban and a freeze on Iraq's assets and financial dealings abroad. As a result, Iraq's regime became increasingly dependent on smuggling — and arms smugglers became increasingly creative at evading the sanctions.

When they returned to Iraq in late November 2002 after four years' absence, U.N. weapons inspectors thus focused on smuggling in their search for evidence of proscribed missiles and chemical, biological or nuclear weapons.

"We went one by one to every single [military] company we knew of in Iraq," said a senior U.N. inspector, who spoke on condition of anonymity. "Al Bashair was target No. 1 on that list."

On March 2, 30 inspectors from the U.N.'s International Atomic Energy Agency arrived without notice to check reports that Al Bashair had put public tenders out on the Internet to buy high-strength aluminum tubes. The CIA had insisted the tubes could be used to enrich uranium for nuclear weapons.

IAEA experts, customs experts, computer specialists and others locked the doors, unplugged phones and grilled Munir, the company's director, in his office. Before leaving, they copied 4,000 documents and downloaded data from office computers. They found no signs of nuclear-related procurement.

Five days later, a team from the U.N. Monitoring, Verification and Inspection Commission, the chief U.N. weapons hunting group, launched another surprise raid to check intelligence that Al Bashair had helped Hussein acquire mobile biological laboratories to churn out germ weapons. Again, they found no evidence.

The war began less than two weeks later. Days after U.S. troops entered Baghdad in April, Christoph Reuter, an investigative reporter for the German newsmagazine Stern, removed selected files from the abandoned Al Bashair office. He later provided the records and cooperated with The Times, which had the documents translated from Arabic and verified their contents with interviews in more than a dozen countries.

The Iraqi weapons files provide the first public evidence of Syria's extensive arms trade with Hussein's regime. Most of Iraq's known arms smuggling schemes in the 1990s went through Jordan. Many involved "one man, one fax" offices set up by Iraqi agents or local businessmen for a specific deal. By 1998, U.N. inspectors had identified 146 Jordanian companies operating as fronts for Iraq.

Heavy pressure from Washington and other capitals finally forced Jordan's government to crack down.

Neighboring Syria, in contrast, had fought with the U.S.-led coalition against Iraq in the 1991 Persian Gulf War, and had no known role supporting Iraq in the 1990s. Neither SES nor any other Syrian company is listed in confidential U.N. records that identify more than 350 companies from 43 nations that U.N. inspectors suspect helped supply prohibited unconventional weapons materiel to Iraq prior to 1998.

But the crippling of Iraq's smuggling rings in Jordan coincided with a dramatic change in Syria. The country's strongman, Hafez Assad, had been a bitter rival of Hussein for most of his three-decade reign. But the Damascus dictator died in June 2000 and his son, Bashar Assad, assumed power. Syria's long-frozen relations with Iraq soon began to thaw.

In November 2000, a newly repaired pipeline from Basra in southern Iraq began carrying 150,000 to 200,000 barrels a day of discounted oil to Syria. Another pipeline to Syria from northern Iraq opened in 2002 to carry another 60,000 barrels a day.

The flow was outside the U.N.-run "oil for food" program, which allowed Iraq to export oil to buy food, medicine and humanitarian items. Experts say Syria kept the contraband Iraqi oil for domestic use, sold its own oil at higher prices on world markets and pocketed profits of up to \$1 billion a year.

In return, diplomats and intelligence experts say, Baghdad got easy access to weapons and so many smuggled goods that it opened a trade office in Tartus, Syria's chief port. Baghdad also got access to the outside world: Iraqi officials, often holding counterfeit passports, increasingly used the airport in Damascus to fly abroad.

"Syria became the most important ally for Iraq in the region, and helped it come out of its global isolation," said a Washington-based diplomat. "Damascus became the gateway for Iraq."

Experts say money may have mattered more than politics in the new alliance.

"It was purely a matter of opportunity" for Syria, said an intelligence official in the region. "I don't think empathy for Iraq came into it. It was like, 'This is going to make me lots of money and I don't mind if it hurts the Americans a little bit either.' "

Among those who prospered was SES International Corp., a conglomerate of nine aviation, construction, oil, car and other divisions based in an industrial area on the northeast outskirts of Damascus.

SES was founded in 1980. According to company documents, it has about \$80 million in annual revenue and 5,000 employees. It is run by a small group of businessmen and other powerful figures with family or clan ties to the Assad regime.

Prominent among them is the president's cousin Asef Isa Shaleesh, the general manager of SES. He is the son of the late dictator's half sister. Another relative, Maj. Gen. Dhu Himma Shaleesh, heads the elite security corps that protects the president. He recently told Western diplomats that he had sold his stake in SES, but they were unable to confirm his claim.

Records reviewed by The Times show Asef Isa Shaleesh, the SES manager, made at least four trips to the Al Bashair offices in Baghdad between September 2001 and August 2002 to sign or update more than 50 SES contracts to supply Iraq's military.

Contract #23/A/2001, for example, was for SES delivery to Iraq of Russian-designed heavy machine guns.

"The Iraqis have confirmed their reception of 1,000 pieces, according to the contract," meeting notes from Nov. 11, 2001 read. "The Iraqi side is in the process of paying the Syrians for a second delivery of 500 pieces of Machines Gun BKC."

Syria's Foreign Ministry helped SES at least once, according to minutes of meetings between Asef Isa Shaleesh and Munir, the Al Bashair director, on April 7-8, 2002.

Four precision metal lathes from HMT Machines International Ltd. in Bangalore, India, had "arrived in Baghdad," the notes said, but customs officials in Malta had seized others destined for Iraq. Documents show that Syria was listed as the final destination, and do not indicate that HMT knew the lathes were headed for Iraq's military. It's unclear what Syria's government knew.

But meeting notes said SES contacted the Syrian Ministry of Industry to intervene with Maltese authorities to release the lathes. "The reply was given by the Foreign Ministry of Syria to authorities in Malta saying the machines belonged to the Syrian company SES," the notes said.

The Syrian regime came up again later in the same set of meetings. "The Iraqi side requests the Syrian side to accelerate getting the approval for the visit of two Iraq experts to enter Syria for the purpose of learning about Kornet antitank missiles from Russia, which are available with the Syrian Ministry of Defense," the notes read. The documents do not indicate whether Syria approved the request. But a Russian company, KBP Tula, had sold 1,000 portable, laser-guided Kornet missiles to Syria.

The Clinton administration imposed sanctions against the company in 1999 under a statute that bars weapons sales to Syria and other nations that the State Department lists as state sponsors of terrorism.

"Russia's foreign minister called the grounds for imposing the sanctions farfetched back then," said Leonid B.

Roshal, deputy director of KBP Tula, in an interview in Moscow. "I was never taught these diplomatic niceties, so I was much more straightforward and said, 'The dog may bark, but the caravan will proceed.' "

Reached by telephone, Asef Isa Shaleesh, the general manager of SES, initially invited a Times reporter visiting Damascus to his office for an interview the next day. But an aide said the next day that Shaleesh "had unexpectedly gone to Romania" and later went to Russia. He has not replied since to numerous telephone calls, e-mails and faxes. Western intelligence had traced some of the SES deals by mid-2002, two years after they began. With reports indicating illicit transfers into Iraq, the U.S. Embassy complained to the government in Damascus that summer.

Assad replied that Syria would not violate U.N. sanctions.

"The president said, 'If you know of any cases, tell us,' " a Western official recalled. When evidence was provided, he added, "the Syrians would allege that that's been stopped."

No evidence has surfaced to show that Assad approved the SES deals with Iraq. But "sanctions-busting at this level would have been hard to keep from the president," a Western intelligence official said. An official from another government agreed. "We think it very unlikely that Bashar was not aware of this," he said.

He noted that two North Koreans flew to SES headquarters in Damascus in February 2003, a month before the war, to meet Munir, the director of Al Bashair.

"A North Korean is not a tourist," the official said. "Either Syria gave direct approval. Or it turned a blind eye."

IAEA inspectors reconstructed a report of the meeting from an erased computer hard drive that they had downloaded at Al Bashair in March. The sit-down at SES apparently focused on Pyongyang's inability to deliver \$10 million of sophisticated ballistic missile technology — and its flat refusal to return the \$10 million.

"The North Koreans said, 'It's too hot to refund your money,' " an official familiar with the report said.

The Times also reviewed a report on another meeting with the North Koreans ten months earlier. On April 8, 2002, Al Bashair approved payment of \$1,975,517 to SES "as down payment in favor of the North Korean side. Ten percent of the sum is deducted for the Syrian side."

U.S. intelligence was unaware until this fall of North Korea's deal with Iraq. In the end, Iraq got neither the missiles nor its refund.

Western intelligence reports allege that several Syrian officials or their adult children were involved in shipments of tank engines, treads for armored personnel carriers, fuel pumps for missiles and other military equipment to Iraq. One Syrian named in an intelligence report as a "key player" is Firas Tlass, head of MAS Economic Group, a business conglomerate based in Damascus. In an interview, Tlass said his companies had shipped textiles, computers and steel bars to Iraq since the late 1990s. But he said Israeli intelligence had spread false reports that he also sold weapons.

"I'm the son of the Syrian defense minister and we're Israel's enemy and they want to discredit the Syrian government and my father," Tlass said. "The only offer my company ever made to the Iraqi military was camouflage field jackets and they turned us down."

Syria's arms trade hit the headlines in March this year when Defense Secretary Donald H. Rumsfeld publicly accused Damascus of smuggling night-vision goggles and other military supplies to Iraq. He said Washington viewed "such trafficking as hostile acts and would hold the Syrian government accountable."

Syria's foreign minister called the charge "unfounded" and "an attempt to cover up what his forces have been committing against civilians in Iraq."

Damascus has sought to repair relations. Washington has praised Syria's assistance in rounding up suspected members of Al Qaeda since the Sept. 11 attacks. But President Bush signed a bill Dec. 12 barring export of military and dual-use items — equipment that could have civilian and military uses — to Syria until the White House certifies that Damascus has withdrawn troops from Lebanon, has cut support for Hamas and other terrorist groups, has stopped proscribed missile and chemical and biological weapons programs, and has acted to prevent militants from entering Iraq to attack coalition forces.

In contrast, the companies that knew the weapons and other sensitive supplies they sold to SES actually were destined for Iraq — a clear violation of U.N. sanctions — have faced little pressure. South Korea's Armitel Co. Ltd. is an example.

A 1998 spinoff from giant Samsung Electronics, Armitel develops and manufactures digital microwave systems for wireless communications. It is based in a high-tech industrial complex south of Seoul.

Armitel had signed contracts in 2001 and 2002 with SES totaling \$23,431,487, the Iraqi files said.

On April 7, 2002, for example, Armitel's chairman inked a \$1,859,862.18 contract with SES for "optical transmission, channel bank and auxiliary items."

But records labeled "secret" in the Al Bashair files show the Armitel equipment was "connected with the supply of air defense" and that the real buyer was the Salahaddin Co., based in northern Iraq, which was trying to develop a radar system to detect U.S. stealth bombers.

In an interview, Lee Dae Young, the 50-year-old chairman of Armitel, said he knew his equipment was headed to Iraq despite U.N. sanctions. But he said he thought he was helping Baghdad upgrade telephone and Internet service. "We sold Iraq an optical cable system," Lee said. "Actually, now that this is over, I can tell you. We sold it to Syrians and they took it to Iraq."

Armitel had sent \$8 million worth of equipment to Syria when U.S. intelligence got wind of the shipments in mid-2002. After the U.S. Embassy in Seoul complained, South Korea's Ministry of Commerce ordered Armitel to stop further shipments. An investigation was begun but Armitel was not charged. The company recently submitted proposals to the U.S.-controlled Coalition Provisional Authority in Baghdad for contracts to build a telecommunications network from Baghdad to Basra.

Another supplier to Iraq's military was Slovenia's RTO Ravne. The state-owned company, then an arms manufacturer, agreed in the fall of 2001 to supply 175 tank barrels — called "steel tubes" in the documents — to the Saddam Co. near Fallouja, one of Iraq's largest producers of artillery, armored vehicles and other heavy military equipment. The \$6.3-million deal had a twist. On paper, the "tubes" went to the Al Heeti Co. in Jordan. In reality, SES handled the deal.

On March 7, 2002, the fourth shipment of five tank barrels arrived at Tartus from Slovenia aboard the Diane A, an Italian ship. Munir, the Al Bashair chief in Baghdad, immediately sent an urgent letter to SES, asking the Syrian company to "take the necessary steps to take over the container and forward it to us as soon as possible."

Later that month, Slovenia's Ministry of Defense announced it had blocked the export by RTO Ravne of 50 smoothbore barrels for the Syrian army's T-72 main battle tanks.

RTO Ravne has since been broken up and privatized. It's unclear how many of the tank barrels ultimately got through to Iraq. Dusan Pahor, the STO Ravne quality control manager whose signature appears on the specification documents, declined to comment on the deal. His supervisor, who identified himself as Mr. Studancik, confirmed the contracts for "tubes" were a sham. "Yeah, yeah, it was tank barrels," he said. "That is correct."

Two Russian companies also had clandestine deals with SES as the war approached. Moscow-based Millenium Co. Ltd. signed an \$8.8-million contract on Sept. 14, 2002 to provide radio frequency equipment, transmitters, mobile eavesdropping systems and other surveillance gear to SES. The contract specified that Millenium would supply equipment from such U.S. companies as Hewlett Packard, Cisco Systems and MITEQ, as well companies in Germany, Canada, France and Japan.

Al Bashair records show, however, that the Millenium representative in Baghdad had met on July 25 with two "representatives of the Intelligence Service" in order to "come to agreement on concluding the contract."

On Sept. 29, the general director of Millenium, an Iraqi exile named Hasam Khalidi, signed a letter advising Al Bashair of the need to "consider the preparation of a sham contract" to conceal the deal "in case other authorities, including United Nations inspectors, want to see a copy of the contract.... The services and materials to be delivered should look as for civilian use so they will not attract attention of those authorities."

In an interview, Khalidi denied writing the letter, denied dealing with SES, and denied that his company had done anything to evade or violate U.N. sanctions. Khalidi argued instead that he had a legitimate business deal to sell bugging equipment to Iraq's Interior Ministry.

"I didn't see anything immoral in it," he said.

"Someone in Iraq is going to be surprised about a monitoring system? I could have stood up and said, 'Aren't you ashamed!'"

In the end, he said the war intervened and the deal collapsed. "Nothing ever happened," he said. "It's a pity."

Al Bashair records also show that a Russian company called TsNIIM-Invest, an offshoot of a state-run science center, signed several agreements with SES between August and December 2001 to supply \$1.7 million worth of large "tubes" suitable for artillery and an "electro-chemical workshop" to the Saddam Co. near Fallouja.

Valentin Petrovich Kuznetsov, the technical director of TsNIIM-Invest in Moscow, declined an interview request.

"As for the tubes, I can tell you that this thing never materialized," he said. "It just didn't happen. There was a lot of fuss about it. But nothing was proven. That is all I can tell you now."

Iraqi officials also made 15 visits before the war to a Russian company called Aviakonversiya. The Moscow-based company specializes in producing GPS jammers, portable units that distort signals used by satellite-based navigation systems. During the war, U.S. aircraft struck several sites where the jammers' radio frequency was detected.

But Oleg Antonov, general director of Aviakonversiya, said the jammers weren't his because the Iraqi delegations looked but never bought.

"Frankly, I would have had no qualms selling this stuff to Iraq," Antonov said. "We wouldn't have sold this to them directly. We would have done it the way everybody was doing it. We would have sold it to some third country."

Antonov added that he would be "happy and proud" if he "knew for sure that our equipment was used in Iraq and was a success there.... It would be the best advertisement for our production."

*Staff writers Alan C. Miller in Washington, Barbara Demick in Seoul and Kim Murphy, Sergei L. Loiko and Alexei V. Kuznetsov in Moscow, and researcher Robin Cochran in Washington contributed to this report.*

<http://www.latimes.com/news/nationworld/world/la-fg-iraqarms30dec30,1,3374831.story?coll=la-headlines-world>

[\(Return to Articles and Documents List\)](#)

Washington Post  
December 30, 2003  
Pg. 1

## **Nuclear Program In Libya Detailed**

***Research at Early Stage, U.N. Inspectors Report***

By Daniel Williams, Washington Post Foreign Service

TRIPOLI, Libya, Dec. 29 -- U.N. investigators inspecting facilities associated with Libya's weapons program found centrifuges and other equipment indicating the country was at an "early stage" of its weapons program, the head of the U.N. nuclear watchdog agency said Monday.

Mohammed ElBaradei, director of the International Atomic Energy Agency, said the Libyans exhibited "a good deal of cooperation" during the inspections Sunday, the first since the Libyan leader, Moammar Gaddafi, pledged Dec. 22 to give up the country's efforts to develop a nuclear device.

In buildings scattered in urban neighborhoods and suburbs of the capital, Tripoli, inspectors found crates that held hardware for machinery capable of purifying uranium for use in nuclear weapons. Two structures contained rooms where such equipment had been installed.

The Libyans displayed dozens of centrifuges, the devices required to develop weapons-grade uranium, ElBaradei said at a news conference here. By comparison, Iran -- which opened its secret nuclear arms program to IAEA inspection this year -- possesses thousands.

"What we have seen is all the equipment they have imported," said ElBaradei, who declined to specify the origin of the imported centrifuges, steel piping and other equipment. He said the paraphernalia so far does not point to former Soviet republics, frequently prime suspects, as a source.

A sophisticated black market, he said, has been refined since the end of the Cold War and extends through Europe and Asia. Countries do not have to purchase complete systems from a single source to enrich uranium, but instead can buy pieces of equipment from many suppliers and cobble them together.

Libya agreed to permit spot inspections in advance of signing a protocol formalizing the so-called intrusive investigations, ElBaradei said. The inspections were a major step in Libya's drive to break free of international pariah status, especially in the eyes of the United States, which maintains a strict trade embargo on Libya.

Officials in Washington said Monday that the Bush administration was planning to test Libya's pledges as early as next month, the Associated Press reported.

A senior administration official told the AP that the United States intended to pursue its own program for dismantling Libya's nuclear infrastructure, along with its chemical and biological weapons and missiles. The United States will send an initial group of technical experts to Libya in January; British experts are expected to go with them.

Last week, the State Department spokesman, Richard A. Boucher, sounded a note of caution about Gaddafi's intentions, saying the United States would "make sure that whatever disclosures Libya makes, that there is a follow-up to identify the full extent of those programs."

During his 34 years in power, Gaddafi has supported terrorist groups, and his government was implicated in the 1988 bombing of Pan Am Flight 103 over Lockerbie, Scotland. He proclaimed himself a hero of the Arab world, then the liberator of Africa. Now, government officials say, Gaddafi wants to lead his country of 5.5 million people into the global economy, increase production and marketing of Libya's large oil reserves and attract investment and trade.

"We can't afford guns and butter," Prime Minister Shokri Ghanem said in an interview.

Nonetheless, by setting up the clandestine program and importing equipment, the Libyans were in breach of the nuclear Non-Proliferation Treaty, which Gaddafi's government had long ago signed. "There were some imports and some activities they should have reported," ElBaradei said.

The veteran inspector said the findings highlighted the inadequacy of international inspections. IAEA teams have been visiting Libya for years and knew nothing about the equipment they saw Sunday. Some of it was found along dirt alleys in urban neighborhoods.

Even permission to allow surprise inspections would not guarantee discovery of a nuclear weapons program. "Low-level programs like this are difficult to detect. They can be run in a garage," ElBaradei said. "You would have to be lucky or have very good intelligence to run across it. We're doing a lot of soul searching."

At the news conference, ElBaradei appealed for export controls on the kind of equipment found here, and for international surveillance of sites where enriched uranium is produced. "The leeway for countries to develop uranium is too risky. We need to choke the supply," he said.

The IAEA director also appealed for countries to use diplomatic means to resolve disputes and reduce the temptation for governments to obtain nuclear weapons, especially in the Middle East, which he called "a hotbed of proliferation."

"This should be part of the peace process," he said in reference to negotiations to resolve the Israeli-Palestinian conflict, which has drawn in several Arab countries over the decades. Israel is believed to be the only Middle Eastern country to possess nuclear weapons, though the Israeli government has never confirmed it.

ElBaradei left Monday for Vienna. Three members of his team stayed behind, and another three IAEA inspectors will join them by New Year's Day.

A Western diplomat, speaking on condition of anonymity, said Libya's program appeared to have been pursued on an ad hoc basis. The Libyans did not systematically shop for equipment, but seemed to pick up pieces where and when they could, said the diplomat, who estimated the overall price tag to be in the hundreds of millions rather than billions of dollars.

"The technology is out of the bag. There are not just one or two suppliers but many," the diplomat said.

The Libyans began developing nuclear technology in the 1970s, the diplomat said, initially to generate power for desalinization projects. In the 1980s, the government told scientists they should also experiment with producing

weapons. Most of the work was done by Libyan scientists, some of whom had studied in at the universities of Wisconsin and Minnesota, and at the University of Exeter in Britain, the diplomat said. In the late '80s, the program was dissolved, only to be revived in the mid-'90s. The diplomat said it might take up to 18 months to certify that Libya had fully abandoned its nuclear program. "It could possibly be done in less time, but who would believe it's thorough?" he said.

<http://www.washingtonpost.com/wp-dyn/articles/A38591-2003Dec29.html>

[\(Return to Articles and Documents List\)](#)

New York Times

## Libya's Atom Bid in Early Phases

By PATRICK E. TYLER

Published: December 30, 2003

LONDON, Dec. 29 — The top United Nations nuclear inspector, Dr. Mohamed ElBaradei, said Monday that Libya's nuclear program was years away from producing a nuclear weapon and that important pieces of equipment were now largely dismantled and stored in boxes.

But Dr. ElBaradei, who spoke in Libya after visiting four previously undeclared sites where scientists had been working to perfect the enrichment of uranium, did express surprise that Libya had acquired a great deal of high-technology equipment needed to enrich uranium through black-market transactions that have yet to be disclosed. It was "an eye opener to see how much material has been going from one country to the other" and "the extent of the black market network," Dr. ElBaradei, the head of the International Atomic Energy Agency, said at a news conference in Tripoli, the Libyan capital, The Associated Press reported. The existence of this shadowy network of middlemen who often circumvent national export controls, he said, proved that those controls were not working. "What we have seen is a program in the very initial stages of development," Dr. ElBaradei said of the Libyan effort. "We haven't seen any industrial-scale facility to produce highly enriched uranium. We haven't seen any enriched uranium."

The Libyan leader, Col. Muammar el-Qaddafi, met Dr. ElBaradei for about half an hour, during which the Libyan reiterated his pledge to rid the country of illicit weapons, an official traveling with Dr. ElBaradei said. Colonel Qaddafi also pledged to begin immediate compliance with the Nuclear Nonproliferation Treaty, especially by submitting to unannounced inspections of any site.

"Libya committed today to act as if the protocol was in force," Dr. ElBaradei said, referring to the treaty requirement on inspections. The Libyans have also been asked to produce documentation about their nuclear program, officials with the atomic energy agency said.

During the news conference, Dr. ElBaradei, a former Egyptian diplomat who last year directed the final inspections in Iraq along with his colleague Hans Blix, said it was his "gut feeling" that Libya was three to seven years away from producing a nuclear weapon.

"We are now working with them to neutralize any activities, any programs that could have led to a nuclear weapon," he said.

On Sunday, Dr. ElBaradei's inspectors visited four previously unknown sites near Tripoli where nuclear weapons-related equipment was stored. A senior Bush administration official said all the sites had been inspected by British and American intelligence experts in October and early December as part of the secret diplomacy that led to Colonel Qaddafi's renunciation of nuclear, chemical and biological weapons on Dec. 19.

Also over the weekend, Dr. ElBaradei's team met and debriefed Libyan scientists and senior government officials, including Prime Minister Shokri Ghanem and Matouq Muhammad Matouq, a Libyan deputy prime minister and head of the country's secret nuclear program.

Robert J. Einhorn, who was the top State Department official in charge of nonproliferation in the Clinton administration, said in an interview that while it is "very good to get Libya out of the nuclear weapons business, it could be even more important if this helps us to understand the black market in nuclear technology and roll up some of those sources of supply."

A senior official in the Bush administration said Dr. ElBaradei's visit was another reminder that the nuclear agency "missed the Libyan nuclear weapons program just like it missed so many others." A spokesman for Dr. ElBaradei said he responded to this assertion by pointing out that "no verification system would be able to detect the kind of low-level activities Libya was conducting short of sheer luck or some perfect intelligence tip." The spokesman said Dr. ElBaradei had long campaigned for a strengthening of the nuclear safeguard provisions of the Nuclear Nonproliferation Treaty.

<http://www.nytimes.com/2003/12/30/international/middleeast/30LIBY.html>



[\(Return to Articles and Documents List\)](#)

New York Times  
December 30, 2003

## **A Nuclear Headache: What If The Radicals Oust Musharraf?**

By David E. Sanger and Thom Shanker

CRAWFORD, Tex., Dec. 29 — Two recent assassination attempts against Pakistan's president, Gen. Pervez Musharraf, have renewed concern in the Bush administration over both the stability of a critical ally and the security of its nuclear weapons if General Musharraf were killed or removed from office.

Administration officials would not discuss their contingency plans for Pakistan, but several said the White House was revisiting an effort begun just after the Sept. 11, 2001, attacks to help Pakistan improve the security of its nuclear arsenal and to prevent Al Qaeda or extremists within the Pakistani military or intelligence services from gaining access to the country's weapons and fissile material.

"It's what we don't know that worries us," said a senior administration official, "including the critical question of how much fissile material Pakistan now holds — and where it holds it."

Three years ago, American officials estimated that Pakistan had enough highly enriched uranium to manufacture 40 nuclear weapons, and it is assumed that the figure has grown.

"It's one of the things that we're concerned about — nuclear materials or weapons-related information falling into the hands of terrorists or states who harbor them — irrespective of what country we're talking about," a State Department official said Monday. "We have discussed these concerns with Pakistan, and we continue to do so. Pakistan has taken those concerns very seriously."

Under both President Clinton and President Bush, the Pentagon has analyzed whether American forces could seize or secure Pakistan's nuclear arsenal if it appeared likely to fall into the hands of terrorists or their sympathizers, part of a broad effort at planning for nuclear emergencies around the world.

But a number of current and former administration officials said they had concluded that it was impossible to be certain where all of Pakistan's nuclear materials and weapons components were stored.

One Pentagon official said any raid by the American military to secure Pakistan's nuclear arsenal during a period of chaos would be "an extremely difficult and highly risky venture." Other administration officials termed it simply impossible.

Officials said they were relatively confident that even if General Musharraf lost power or was killed, Pakistan has established some fairly reliable nuclear safeguards. Nuclear warheads, triggering devices and the delivery systems for the weapons are all stored separately; thus, it would be difficult to steal a complete weapon, according to administration officials and academic analysts.

The degree to which the United States may have aided in that process is a secret, in part because the Bush administration does not want to worsen anti-American sentiment in Pakistan. But there are other reasons, administration and Pentagon officials say.

Pakistan has not signed the Nuclear Nonproliferation Treaty, and so the United States is prohibited from sharing certain technology. But two years ago a senior American official said the Bush administration would not let those rules be an impediment to improving the safety of the Pakistani arsenal.

Still, the computerized, encoded nuclear safeguards are among the United States' most prized secrets, and military officials fear they could pass through Pakistan's hands to adversaries. Pakistan, too, might reject an offer of the safeguard technology because it would have to share its own nuclear design secrets with the United States to create a compatible system.

Shortly after the Sept. 11 attacks, George Tenet, the director of central intelligence, and Richard Armitage, the deputy secretary of state, visited Pakistan and raised the delicate issue. On Monday, officials declined to describe the results of those discussions.

But administration officials appear less concerned that General Musharraf would lose control over actual weapons than over highly enriched uranium. Terrorists in possession of bomb fuel, even without the triggering devices needed to produce a nuclear explosion, could build a "dirty bomb" that spews radioactive material, or could attempt to engineer a crude nuclear device.

Documents seized after the invasion of Afghanistan suggested that while Al Qaeda sought to develop a nuclear weapon, it was not close to doing so. But Pakistan's scientific community has that ability, and much of the American concern centers on the issue of whether General Musharraf has the loyalty of his nuclear scientists.

"When people talk about the safety and security of Pakistan's nuclear programs, they often focus on facilities and weapons and whether, if you have a coup or the death of Musharraf, these facilities come under some kind of hostile control," said Mahnaz Ispahani of the Council on Foreign Relations. "But an equal threat is the nature of these scientists, and what their connections are, and how well they are screened and monitored."

George Perkovich of the Carnegie Endowment for International Peace is among those who argue that Pakistan's self-interest is reason for confidence in the security of its nuclear arsenal. "You have an organization that runs the country that would be quite obsessive about maintaining control over these weapons," he said. "They are the crown jewels, the ultimate deterrent and source of pride and prowess."

That calculation changes, experts warn, should Pakistan, fearing war, assemble the weapons and transport them about the country for possible use. And the recent attacks raise a fresh set of concerns.

"It's very unsettling what these assassination attempts imply, that the inner security circle for Musharraf has been breached," said Gaurav Kampani of the Center for Nonproliferation Studies. "If security for the president, for the head of the Pakistani Army, cannot be guaranteed, what guarantee is there that nuclear assets and missiles and so forth are safe?"

*David E. Sanger reported from Crawford, Tex., for this article, and Thom Shanker from Washington.*

<http://www.nytimes.com/2003/12/30/international/asia/30DIPL.html?pagewanted=all>

[\(Return to Articles and Documents List\)](#)

Washington Post

December 30, 2003

Pg. 16

## **N. Korea Has Mixed Message On Talks**

By Mike Allen and Thomas E. Ricks, Washington Post Staff Writers

CRAWFORD, Tex., Dec. 29 -- Bush administration officials said Monday that they have been told North Korea has signaled a willingness to begin a second round of six-nation arms talks in Beijing as soon as next month.

But U.S. officials said they will not agree in advance to incentives that have been sought by North Korea, and North Korean officials issued a statement saying they have been "slandered" by President Bush and "U.S. imperialists."

The public comments by both sides suggested they are a long way from even beginning productive discussions, let alone defusing the tensions over North Korea's nuclear weapons program.

Administration officials had hoped the talks would resume this month and had expressed increasing impatience with North Korea's reluctance. The first set of talks ended in August with a threat by North Korea to test a nuclear weapon. White House aides had been discussing the possibility of a public statement by President Bush to put more international pressure on North Korea to return to the table.

State Department spokesman Adam Ereli said at his daily briefing on Monday that the United States had been told by the Chinese, who are coordinating the negotiations and hosting the talks, that North Korea "has agreed in principle to a resumption of the talks." But Ereli declined to describe that as progress, and U.S. officials were equally cautious in their private comments.

"I don't think we're close until we're there," Ereli said. "It's a complex diplomatic effort that requires patience and does not lend itself to sort of flights of exuberance."

The talks also include the North Korea neighbors South Korea, Russia and Japan. Bush has said he is willing to be a party to a joint statement among the nations promising not to attack North Korea, but U.S. officials have said they are not ready to discuss possible economic or energy assistance in the second round of talks.

White House spokesman Trent Duffy, speaking to reporters near Bush's Texas ranch, repeated the U.S. demand that the talks lead to the "complete, verifiable and irreversible elimination of North Korea's nuclear programs."

Administration officials have said North Korea has been unwilling to agree to such language, and Vice President Cheney indicated at a recent senior-level meeting that he will insist on it.

A State Department official said the Chinese intermediaries, speaking through the U.S. Embassy in Beijing, have not made it clear whether North Korea has dropped such preconditions for talks as security assurances and an aid package.

"We are ready for talks without preconditions," the official said. The official said no date has been set but that the United States would like hold them as soon as possible after New Year's Day.

Ereli said the United States had been told about North Korea's agreement in principle in the last couple of days.

A new round of talks were not mentioned in a tough statement transmitted from Pyongyang, the capital, on Monday by the North Korean news agency KCNA, which said that "this year the U.S. imperialists have escalated tensions on the Korean Peninsula, pursuant to a hostile policy towards" North Korea.

Referring to a series of international meetings, the statement said, "The U.S. has craftily worked to exploit those meetings for the settlement of the nuclear issue between [North Korea] and the U.S. as a leverage for attaining its sinister aim."

It concluded by saying that "all these facts go to prove once again that the [North Korean] government was just when it took the measure to build up its nuclear deterrent force this year . . . clearly seeing through the true aggressive nature of the U.S. imperialists."

*Ricks reported from Washington. Staff writer Glenn Kessler contributed to this report.*

<http://www.washingtonpost.com/wp-dyn/articles/A39769-2003Dec29.html>

[\(Return to Articles and Documents List\)](#)

Washington Times

December 30, 2003

Pg. 17

## **A Policy Of Prevention**

*The administration's strategy against WMD is working*

By Tod Lindberg

The pre-Christmas announcement that Libya's ruler, Moammar Gadhafi, has decided to end his development programs for and destroy his stocks of weapons of mass destruction(WMD) marks a watershed moment in the new Bush administration strategy of prevention. Make no mistake about what has happened, thanks to deft diplomacy by the administration and Tony Blair's government in Britain: Col. Gadhafi has concluded that he is safer without such weapons.

Some are trying mightily, but it is very difficult to understand Col. Gadhafi's decision without reference to the regime change in Iraq. At the time U.S. and British forces entered Iraq, Saddam Hussein was widely believed to possess substantial stocks of chemical and biological weapons, to be working on delivery systems and to have nuclear ambitions. Where are the weapons, critics have asked, and it's an important question with regard to Western intelligence capabilities. It also misses an important point.

If Saddam had really meant to give up on WMDs once and for all, he could easily have demonstrated it by cooperating fully with inspectors (long before matters reached a head in the U.N. Security Council a year ago), producing documentation that all his stocks had been eliminated and inviting an ongoing inspections/verification process involving the United Nations and the International Atomic Energy Agency.

Instead, he behaved furtively. The reports coming from senior regime scientists and military figures reveal massive confusion within Iraq about the state of play on WMD. As for forward deployment in Iraqi military units, no one had chemicals, but most seemed to think that others did. Saddam repeatedly asked his officials how long it would take to develop certain chemical and biological weapons, creating the impression within his government that he had every intention of beginning new programs when he felt he could safely do so. And defectors delivered messages about ongoing weapons programs, apparently in a disinformation campaign designed to discredit, over time, Western intelligence reports on Iraq (a ruse that one must concede was rather effective, albeit not with the result Saddam presumably intended, namely, getting out from under the U.N. sanctions).

The reason he behaved furtively is also becoming increasingly clear from former regime officials: He wanted certain people within Iraq and outside to think that he had these weapons. Creating this impression was valuable to him. It should perhaps not come as a surprise that a ruler who has maintained himself in power through the brutality of terror and repression should find it useful to his reputation for ruthlessness to be thought to possess the world's worst weapons (along with a track record of using them against his own people). Indeed, according to the statements of some former regime officials, Saddam thought the belief that he possessed such weapons would itself deter the United States from trying to topple him.

This is exactly the problem. The more that unsavory rulers around the world get the impression that possession of nuclear or chemical or biological weapons deters the United States, the more ambitious they may become in pursuit of such weapons. They will see these weapons as a net contribution to their own safety.

Now, the United States is unwilling to sit back idly while such a world comes into being, not only on the grounds that nuclear and other WMD proliferation by states is inherently bad, but also because of the possible nexus between states' development of such weapons and terrorist organizations' acquisition of them. So, the Bush administration announced a policy of preemption (more precisely, "prevention") meant not only to deter the use of WMD but also to deter the acquisition and possession of WMD.

Hence, the action against Saddam Hussein's government in Iraq. The most important implication of that action outside Iraq was to be the creation of the impression that a determination to have WMD capabilities was, in turn, precisely the sort of impression that dictators would not want to give the United States. Rather than enhancing their security, the pursuit of such weapons would put them at grave risk, and even in the end, their possession would offer no guarantee of security and safety: There could be no certainty that the United States would be deterred from taking

action even then, and the risk that the United States would take action to prevent the acquisition of a WMD capability by regime change would not be negligible.

Saddam Hussein does not get his government back because we have found no stocks of chemical and biological weapons. Instead, he has to live with the consequences of the impression he created.

When the Bush and Blair governments secretly confronted Libya with evidence of its WMD programs, Col. Gadhafi — who knew perfectly well that in his case, the intelligence was accurate — had a choice to make. He could either disarm conspicuously. Or he could face highly uncertain consequences.

He chose to disarm. That is exactly the point of a policy of prevention. It is designed to make the costs of pursuing WMD prohibitive, perhaps existentially so. And it's working.

*Tod Lindberg is the editor of Policy Review magazine and a research fellow at the Hoover Institution. His column appears on Tuesdays.*

<http://www.washtimes.com/op-ed/20031229-091558-2992r.htm>

[\(Return to Articles and Documents List\)](#)

New York Times  
December 30, 2003

## **Finding May Help Fight Anthrax Toxin, Scientists Say**

BOSTON, Dec. 29 (Reuters) — A small group of molecules has been shown to inhibit a deadly toxin associated with inhalational anthrax, a discovery that could lead to new ways of treating the disease, researchers said on Monday.

Scientists at Harvard Medical School and Beth Israel Deaconess Medical Center here said the finding might help in the development of a drug that when combined with antibiotics, could treat inhalational anthrax when antibiotics alone were no longer effective.

Inhalational anthrax is the most serious form of the disease and can develop when people breathe in tiny anthrax spores.

Another form, cutaneous anthrax, is an easily treated skin infection.

Unlike most types of bacteria, the anthrax germ can produce large amounts of a toxin that can kill a patient even after antibiotics have destroyed the bacteria, said the senior author of the study, Dr. Lewis C. Cantley.

Autopsies of patients who died of inhalational anthrax revealed that high doses of antibiotics had killed the bacteria, indicating that the patients died from the toxins.

In the fall of 2001, anthrax-laced letters killed several people in the United States, including two postal workers in Washington, a stockroom clerk at a New York hospital and an elderly woman in Connecticut. No one has ever been arrested in the attacks.

Writing in the January issue of the journal *Nature Structural & Molecular Biology*, the researchers said their discovery could help scientists develop drugs capable of fighting the anthrax toxin in a way similar to the protease inhibitors that tackle the AIDS virus.

Protease inhibitors work by disabling native protease enzymes. Like a key fitting perfectly into a lock, the inhibitors jam up the enzyme, rendering it ineffectual.

Dr. Cantley, chief of the division of signal transduction at Beth Israel and professor of systems biology at Harvard Medical School, said there could be a number of advantages to using protease inhibitors to attack anthrax.

"Unlike an antiserum, which would require that whole populations be vaccinated — regardless of whether or not an anthrax outbreak developed — a therapeutic combination of antibiotics and protease inhibitor drugs wouldn't have to be used except in the incidence of actual disease," he said.

<http://www.nytimes.com/2003/12/30/health/policy/30ANTH.html?pagewanted=all>

[\(Return to Articles and Documents List\)](#)

New York Times  
December 30, 2003

## **Sleuths Patrol Nations For Nuclear Mischief**

By William J. Broad

SEIBERSDORF, Austria — Amid rolling hills and tidy farms, the fences are topped with barbed wire and the guard at the gate carefully checks for identification before letting a visitor into the world's top laboratory for nuclear sleuths.

Here, atom by atom, scientists from many countries are addressing riddles like the source of Iran's highly enriched uranium, which inspectors recently found. The answer could expose a simple case of contamination on imported machinery or, more worrisome, a clandestine program to build atomic bombs.

The dozens of experts and officials here at the Safeguards Analytical Laboratory are quiet and unassuming. But it is not far-fetched to think that their work has the power to tip the balance between war and peace.

"We're very proud," Dr. Werner Burkart, deputy director general at the International Atomic Energy Agency in Vienna, said. "You can sample dust from a truck that has passed by a factory. You can see a single atom. It's really marvelous."

The laboratory, part of the atomic energy agency, is an arm of the United Nations that helps monitor the nuclear ambitions of 145 nations. Its mission is to analyze clues of chemistry and physics to verify that states are meeting their peaceful atomic pledges and not secretly making deadly weapons.

Skeptics note that Iran, Iraq and North Korea embarked on secret arms programs under the nose of the agency's teams. But agency supporters say that of late, investigators have gained major powers. They can now examine whole states as well as tiny particles invisible to the eye.

It is a world of precision focused on wisps of evidence that inspectors have gathered from gear, nuclear sites, water, trees and even dust. The lab analyzes up to 2,000 samples of nuclear materials and 500 environmental samples a year. Its ultrasensitive machines can tease vital information from particles one one-hundredth the width of a human hair.

Like crime scene detectives, the analysts are tight-lipped. "Safeguards is very secretive," Dr. Burkart said.

Just outside the village of Seibersdorf, about an hour southeast of Vienna, is a blue and white complex that includes a new large windowless building where the agency is intensifying its hunt for the most subtle kinds of evidence. It is known simply as the Clean Laboratory.

Its origins lie in crisis. After the Persian Gulf war of 1991, international inspectors were stunned to discover that Iraq had deceived them and that it was trying to learn how to make nuclear arms. In 1997, in response, the agency instituted what is known as the Additional Protocol to help ferret out clandestine work around the globe. The agency can now go anywhere in a cooperating nation, not just to places declared relevant.

"It fills in the gaps," said Dr. Jill Cooley, an American who directs Safeguards' planning at the agency.

In particular, the protocol lets the agency go beyond the old methods of simply auditing nuclear materials. When nations ratify the accord, inspectors can examine mines, waste-storage sites and other nuclear areas; can investigate on short notice; and can gather environmental samples from wide areas.

The Clean Laboratory leads the environmental work. Its main task is to make sterile kits that are free of nuclear contamination for field inspectors, Dr. Yusuke Kuno, a Japanese scientist who heads the Safeguards lab here, said.

"It's very, very clean, like a semiconductor lab," Dr. Kuno said as he led a visitor through. Big windows looked in on inner sanctums where men and women worked at benches and gleaming machines.

Dr. Kuno said each sampling kit held a pen, paper, lab gloves and cotton swipes packed in plastic bags. The inspectors run the swipes across surfaces where dust or other telltale particles may collect, like the corners or ventilation ducts of a nuclear plant. Then, the inspector double bags the swipe to make sure it remains uncontaminated.

Swipes being analyzed are given unique identifiers. Dr. Kuno showed one, No. 20569. "We have no idea where it came from," he said. "Only headquarters knows." The anonymity is a safeguard to root out inspectors' bias and clandestine efforts to plant or cover up evidence.

The lab keeps backup samples and sends others to a global consortium to confirm readings. Partner labs are in Britain, Canada, France, Germany, Hungary, Japan, Russia and the United States, among others.

The Clean Lab has some of the world's most advanced machines for disclosing the signatures of atomic materials. A signature may arise from a special mix of isotopes, atoms of the same element whose nuclei bear different numbers of neutrons. Detecting such nuances can shed light on a sample's history. And by matching distinctive samples, much as a detective matches up fingerprints, inspectors gain insights into the places they originated.

The first machine is the size of a small car. Its robot arm can pick up a sample bag and position the swipe for X-ray fluorescence analysis, which identifies the sample's elements, perhaps finding uranium, the fuel of reactors and bombs. The machine produces a multicolored map showing the overall concentrations of the elements.

Dr. Kuno found a sample printout. Its brightly colored hot spots showed where the inspector had pressed down hard on the swipe, increasing the pickup of uranium particles.

The next machine dug deeper into the physical makeup of the sample, identifying its various isotopes like uranium 234, found in tiny amounts in nature; uranium 235, slightly more prevalent, but valuable because it splits easily in two; uranium 236, made in reactors and not found in nature; and uranium 238, dominant in uranium ore. The method is known as thermal ionization mass spectrometry.

"This is very, very sensitive mass spec," Dr. Kuno said, adding that the machine can measure a particle that weighs as little as a single femtogram, or 0.000000000000001 gram.

Uranium 235 is a possible alarm bell. Low concentrations are the hallmark of reactor fuel, but high concentrations signal bomb fuel, a top target for the inspectors.

In the next room, two men fed samples into a gamma ray spectrometer, which can identify products of uranium fission like cesium and strontium, some of the residue when uranium splits. They would signal a history of nuclear reactions.

Like powerful microscopes, the next machines peered deeper into the samples, letting operators ferret out single particles whose compositions might escape detection in bulk measurement. One was a scanning electron microscope with an X-ray fluorescence spectrometer.

"No contributor lab has this combination," Dr. Kuno said. "Only Seibersdorf." Its operators can zero in on a uranium particle, inspecting it for visual clues of the way it formed.

A final machine, a secondary-ion mass spectrometer, can probe a single particle to determine its isotopes. For instance, it can reveal a glut of uranium highly enriched in the 235 isotope, by definition making it a potential sign of bomb fuel.

"This is the most important tool to find evidence of enrichment," Dr. Kuno said. "It's a very strong tool. We used it with Iraq and Iran," where inspectors have in the last year carried out major searches.

Evidence from Seibersdorf and partner labs goes to the agency's headquarters in Vienna, where analysts know the samples' origins and try to interpret the clues.

A tiny speck is enough to send officials and diplomats racing back to the originating country for answers. "We don't care about the quantities," a Safeguards analyst, Diane Fischer, said. "The whole purpose is to look for evidence of undeclared activities."

Although many experts hail the Additional Protocol and its tools as powerful means of uncovering illicit programs, some note that its application remains limited. The problem, said Dr. Lawrence Scheinman, a nuclear expert at the Washington office of the Monterey Institute for International Studies, is that so far only 38 nations have it in force, and just about half of those have significant nuclear programs.

Even so, Libya, long an outcast among nations, this month signaled its willingness to sign the protocol so that the agency's inspectors can verify the elimination of its program for nuclear arms.

And the agency scored a significant victory on Dec. 18, when Iran, under intense international pressure, became the 79th country to sign the accord. The country has recently been accused of using its civilian nuclear program as a cover to develop nuclear arms, an accusation that it fiercely denies.

Free to conduct inquiries in Iran even before that signing, the atomic agency is trying to track down the origins of highly enriched uranium that its inspectors found last spring and summer. It discovered at least three diverse types, potentially complicating the task of analysis, the agency reported last month.

Iran told the agency that the suspicious uranium was contamination from centrifuge parts that it had imported. If the I.A.E.A. finds otherwise, gathering evidence that Iran made the highly pure uranium 235 itself, the agency could judge the country in violation of antiproliferation accords and send the case to the United Nations Security Council, which could impose sanctions.

Bennett Ramberg, a policy analyst in the State Department in the first Bush administration, said the consequences could be even more dire. Israel, fearing a neighbor with atomic capacity, might attack the Iranian nuclear sites, as it did an Iraqi reactor in 1981, concerned that Baghdad might use it to make nuclear arms.

So the numbered bags now making their way through the warrens of Seibersdorf could prove significant, as the atomic agency is only too well aware. A public report on its Iranian findings is probably months off, agency experts and officials said. Considering the stakes, a lack of haste and scrupulous attention to detail are the watchwords.

"This is an exhaustive process," one official said. "We haven't set deadlines."

<http://www.nytimes.com/2003/12/30/science/30SLEU.html?pagewanted=all>

[\(Return to Articles and Documents List\)](#)

New York Times  
December 31, 2003

## **F.D.A. Rules Shots Effective For Anthrax That Is Inhaled**

By Thom Shanker

WASHINGTON, Dec. 30 — The Food and Drug Administration announced Tuesday that the anthrax vaccine protected against the inhaled form of the bacteria, aiding government efforts to restart the Pentagon's mandatory inoculation program, which was stalled by a federal injunction.

The Justice Department swiftly capitalized on the new F.D.A. determination late Tuesday, filing an emergency motion asking a federal judge to vacate the injunction.

In a statement, the drug agency described its conclusion that "the licensed anthrax vaccine, Anthrax Vaccine Adsorbed, is safe and effective for the prevention of anthrax disease regardless of the route of exposure."

Its language was clearly directed at Judge Emmet G. Sullivan of the United States District Court for the District of Columbia, who issued a preliminary injunction last week to halt the Pentagon's use of what he described as "an investigational drug."

The judge wrote that the vaccine had been approved by the drug agency to protect against skin exposure to anthrax but not against airborne anthrax, the most likely route through which bacteria would be used to threaten American forces on the battlefield.

A day after the judge issued the injunction, the Pentagon halted the anthrax vaccine program until the legal issues were clarified.

In its statement on Tuesday, the F.D.A. said the new "final rule and order" made clear that it "does not regard the approved anthrax vaccine as investigational for protection against inhalation anthrax." The new determination, the statement said, was "relevant and should be considered in any further litigation in this matter."

But Mark S. Zaid, a lawyer who is challenging the Pentagon's mandatory anthrax vaccine program, said the timing of the announcement was driven by politics, not science.

"This alleged final rule is nothing more than after-the-fact gamesmanship to overrule the court's findings," he said in a telephone interview. "It appears reflective more of policy duress than independent analysis."

Dr. Karen Midthun, the acting deputy director for medicine at the F.D.A.'s Center for Biologics, said the determination "was in its final clearance process shortly before the court decision came out."

"It has been a long, ongoing process, trying to finalize this rule," Dr. Midthun said in a telephone interview. She said efforts were accelerated after the anthrax attacks in late 2001.

The F.D.A. said numerous studies undertaken by government laboratories and independent researchers to confirm the safety and effectiveness of the vaccine against inhaled anthrax were available to the public for scrutiny. But a statement from the plaintiffs' lawyers cited independent analysis that "concluded that the vaccine could not be expected to protect troops against airborne anthrax and should be considered experimental."

John J. Michels Jr., a plaintiff co-counsel, issued a statement saying, "The F.D.A. pronouncement is not retroactive and, at best, means that the F.D.A. has issued a ruling that makes the vaccine properly licensed from this point forward."

The Bush administration took its first legal step in response to the injunction on Dec. 24, when the Justice Department filed a motion seeking clarification of whether the injunction applied solely to the six plaintiffs in the suit. If not, the motion asked the judge to reconsider or withdraw the injunction, arguing that the suit was not filed as a class action on behalf of all military personnel.

The emergency motion filed Tuesday evening cited the new F.D.A. determination and asked the court to vacate the injunction and to stay its effects for all service members but the six plaintiffs, according to a copy provided by the Justice Department. "There can be no doubt that the F.D.A. order removes the legal basis upon which relief was sought and granted in this case," the motion said.

"The urgency of the matter is clear," the motion stated, adding later, "The longer such an injunction remains in place, the greater is the danger to the men and women of our armed forces and to our military preparedness."

<http://www.nytimes.com/2003/12/31/politics/31ANTH.html>

[\(Return to Articles and Documents List\)](#)

Philadelphia Inquirer

December 31, 2003

## **U.N. Nuclear Agency Says No U.S. Help Needed In Libya**

*IAEA chief ElBaradei said the group could scrap Libya's "low-level" nuclear program on its own.*

By George Jahn, Associated Press

VIENNA, Austria - The U.N. nuclear agency does not need American help in dismantling Libya's nascent weapons program, the agency chief said yesterday, echoing differences with Washington over Iraq and Iran.

The International Atomic Energy Agency is happy to receive U.S. and British intelligence that will assist its inspectors in Libya, Mohamed ElBaradei said.

But the IAEA does not want help on the ground.

"I am not familiar with anything they plan to do on a bilateral basis," ElBaradei said of U.S. plans to police and scrap Libya's covert nuclear program. "As far as I'm concerned, we have the mandate, and we intend to do it alone."

The Bush administration is convinced Libya's nuclear program was far more extensive than assumed by the Vienna-based IAEA. In response, Washington has decided to send its own inspectors and British technical experts to Libya to help survey and dismantle the weapons programs.

ElBaradei spoke a day after returning from a visit to Libya, where he and an IAEA team visited four once-secret nuclear sites in the capital, Tripoli. They said that, from what they saw, Libya was years from developing nuclear weapons.

During the trip, ElBaradei met with Libyan leader Moammar Gadhafi, who assured the IAEA chief that Libya would cooperate fully with inspections and eliminate its long-secret nuclear program, saying he wanted to turn Libya into a "mainstream" nation, IAEA spokesman Mark Gwozdecky said.

In Washington, State Department spokesman Adam Ereli said Secretary of State Colin L. Powell spoke with ElBaradei before and after his visit to Libya.

"It's going to take time before we can draw final conclusions about the Libyan program," Ereli said, adding that the Bush administration was planning to work with the IAEA to determine the nature of Libya's weapons activities.

The White House and ElBaradei's agency have also differed during the last year over the extent of the nuclear-weapons threat in Iraq under Saddam Hussein and in Iran.

The Americans invaded Iraq arguing that Hussein was trying to make nuclear and other weapons of mass destruction. ElBaradei maintains that what his teams saw in the months preceding the war suggested the Iraqis were in no position to build a nuclear weapon. So far, after eight months of U.S. control over Iraq, no such weapons have been found.

American officials were also upset at ElBaradei's assessment in November that IAEA inspectors had found no evidence of an arms program in Iran, though they noted suspicious findings and criticized Tehran for hiding part of its nuclear program for years. The United States asserts that uranium enrichment and other Iranian activities point to attempts to make nuclear weapons.

Defending the joint U.S.-British plans in Libya, a senior Bush administration official pointed to ElBaradei's visit to only four nuclear sites. CIA and British intelligence have concluded there are 11 such sites, said the official, who asked for anonymity.

ElBaradei said yesterday he made no suggestion that Libya had only four nuclear-related sites. "I think I made it very clear that our assessment was based on what we have been told and what we have seen," he said. "We're not saying, 'This is it, guys.' "

Indirectly contradicting U.S. assertions of an extensive program, ElBaradei said that what he had seen suggested Libya did not go beyond "low-level, small-scale" testing of enrichment equipment.

He described the equipment he saw as "nothing really special," calling it "components which had not been assembled,... mothballed and in containers."

"It was much more modest in comparison with the Iranian program, which is much more ambitious, large-scale industrial production" of enriching uranium, he said.

<http://www.philly.com/mld/inquirer/news/nation/7602310.htm>

[\(Return to Articles and Documents List\)](#)

New York Times

January 1, 2004

Pg. 8

**Military Analysis**

## **Giving Up Those Weapons: After Libya, Who Is Next?**

By Michael R. Gordon

WASHINGTON, Dec. 31 — Undoing a weapons program is one of the rarest of decisions for an absolute leader.

After South Africa's apartheid government was replaced by black majority rule, South Africa astonished the world by disclosing that it had developed six nuclear weapons and then allowing the United Nations nuclear inspections agency, the International Atomic Energy Agency, to disarm it. That decision, in effect, was the result of a naturally occurring "regime change."

Libya's important and welcome decision to abandon its unconventional weapons programs is all the more interesting since the same government that got Libya into the business of developing forbidden weapons has now ordered the change of course.

But the larger issue is whether North Korea and Iran can be similarly disarmed and, if so, how best to go about it.

Libya never got very far down the nuclear road and its weapons programs were not enough of a worry to rate inclusion in the "axis of evil" proclaimed by President Bush in his State of the Union speech in 2002. (Iraq, Iran and North Korea made the cut).



While Libya had acquired centrifuges on the black market, it had not assembled them into a large-scale cascade for producing highly enriched uranium. When it came to a nuclear arsenal, Libya was abandoning a distant — but still dangerous — dream, not a real ability.

North Korea and Iran are much tougher cases and ultimately a far more important test of the Bush administration's efforts to roll back weapon programs through a mixture of force and diplomacy, rather than the more traditional reliance on weak international treaties and policing.

American intelligence agents project that North Korea has already got one or two nuclear weapons and the ability to expand this presumed nuclear arsenal. Iran has also been working energetically toward developing a nuclear weapons capacity, American intelligence says. It remains to be seen if the signing this month of an agreement on international inspections will eventually halt those efforts.

The turnabout by the Libyan leader, Col. Muammar el-Qaddafi — and the secret British and American diplomacy that encouraged it — amount to just one step on the road to stopping proliferation, and the question is how to take the next ones.

From the start, the Bush team has said that Iraq was about more than Iraq. The Bush administration began the year with an audacious doctrine that held that removing Saddam Hussein from power would send a cautionary message to weapons proliferators and help remake the Middle East. As it heads into an election year, the Bush administration has highlighted the role that American power may have played in concentrating the Libyan leader's mind. Top Libyan officials, by contrast, have pointed to economic considerations.

The possibility of ending decades of punishing economic sanctions might indeed have led Colonel Qaddafi, who has ruled for 34 years and wants to stay in power, to chart a new course even if the Iraq war had not occurred.

Still, it may be that the American invasion of Iraq reinforced the message that the pursuit of forbidden weapons did not strengthen his government. The Reagan administration, after all, ordered Air Force F-111's and Navy A-6's to bomb Libya in 1986 after concluding that Libya was behind an attack on American servicemen in Europe.

There is no indication of a similar change of heart in North Korea, where there are indications that Kim Jong Il has drawn a very different lesson from the Iraq war. Having seen how the leader of Iraq was transformed into a prisoner, North Korea appears to have concluded that the best protection against an American intervention is a nuclear arsenal, the bigger the better.

Instead of renouncing its nuclear program, North Korea has in the past year advertised its supposed advances in making nuclear weapons. The Bush administration has turned particularly to China — as well as to Russia, South Korea and Japan — to try to advance diplomacy, but has in effect found itself with little leverage.

Threatening military force is not an option. War on the heavily armed Korean Peninsula would be a calamity. No Asian ally is prepared to back a policy of confrontation. With most of the United States Army preoccupied with Iraq and Afghanistan, the United States simply lacks the military muscle to marshal a credible threat.

In talks, North Korea has proved to be frustrating and possibly untrustworthy. The Bush administration, meanwhile, has oscillated between a hard-line policy of waiting for North Korea's collapse to trying to engage the North in bargaining.

If there is hope of replicating the Libyan reversal it may be in Iran.

First, Iran has not yet developed nuclear weapons. So it would be giving up a prospective, and not actual, ability.

Second, a diplomatic process is already under way.

Gary Samore, a senior fellow at the International Institute for Strategic Studies in London and a former proliferation expert on President Bill Clinton's National Security Council, notes that Iran has responded to diplomatic pressure.

What is needed now is a permanent solution, one in which Iran will permanently forgo efforts to produce nuclear weapons materials by enriching uranium or producing plutonium.

European nations have offered Iran access to fuel supplies for a peaceful nuclear program if it gives up its ambitions to develop nuclear weapons.

"In the case of North Korea the Libya model is unrealistic," he said in a telephone interview. "It is not plausible that the North Korean regime, given their perception of the world, will give up their missiles, chemical, biological and nuclear programs in exchange for better relations. They view them as essential for their survivability. The best you can do is to achieve limits." If there is a chance to repeat the Libyan experience, he notes, "the test will come in Iran."

<http://www.nytimes.com/2004/01/01/international/africa/01DISA.html>

[\(Return to Articles and Documents List\)](#)

# From Rogue Nuclear Programs, Web Of Trails Leads To Pakistan

By David E. Sanger and William J. Broad

The Pakistani leaders who denied for years that scientists at the country's secret A. Q. Khan Research Laboratories were peddling advanced nuclear technology must have been averting their eyes from a most conspicuous piece of evidence: the laboratory's own sales brochure, quietly circulated to aspiring nuclear weapons states and a network of nuclear middlemen around the world.

The cover bears an official-looking seal that says "Government of Pakistan" and a photograph of the father of the Pakistani bomb, Abdul Qadeer Khan. It promotes components that were spinoffs from Pakistan's three-decade-long project to build a nuclear stockpile of enriched uranium, set in a drawing that bears a striking resemblance to a mushroom cloud.

In other nations, such sales would be strictly controlled. But Pakistan has always played by its own rules.

As investigators unravel the mysteries of the North Korean, Iranian and now the Libyan nuclear projects, Pakistan — and those it empowered with knowledge and technology they are now selling on their own — has emerged as the intellectual and trading hub of a loose network of hidden nuclear proliferators.

That network is global, stretching from Germany to Dubai and from China to South Asia, and involves many middlemen and suppliers. But what is striking about a string of recent disclosures, experts say, is how many roads appear ultimately to lead back to the Khan Research Laboratories in Kahuta, where Pakistan's own bomb was developed.

In 2002 the United States was surprised to discover how North Korea had turned to the Khan laboratory for an alternative way to manufacture nuclear fuel, after the reactors and reprocessing facilities it had relied on for years were "frozen" under a now shattered agreement with the Clinton administration. Last year, international inspectors and Western intelligence agencies were surprised again, this time by the central role Pakistan played in the initial technology that enabled Iran to pursue a secret uranium enrichment program for 18 years.

The sources of Libya's enrichment program are still under investigation, but those who have had an early glance say they see "interconnections" with both Pakistan and Iran's programs — and Libyan financial support for the Pakistani program that stretches back three decades.

Until two weeks ago, Pakistani officials had long denied that any nuclear technology was transferred from their laboratories. But now that story has begun to change, after the Pakistani authorities, under pressure, began interrogating scientists from the laboratory about their assistance to other nuclear aspirants. Two weeks ago, Dr. Khan himself was called in for what appears to have been a respectful, and still inconclusive, questioning.

Responding to requests relayed through associates, Dr. Khan has recently denied that he aided atomic hopefuls. But American and European officials note that in the 1980's he repeatedly denied that Pakistan was at work on an atomic bomb, which it finally tested in 1998.

While American intelligence officials have gathered details on the activities of the creator of the Pakistani bomb and his compatriots for decades, four successive American presidents have dealt with the issue extremely delicately, turning modest sanctions against Pakistan on and off, for fear of destabilizing the country when it was needed to counter the Soviets in the 1980's, much as it is needed to battle terrorism today.

President Bush, who regularly talks about nuclear dangers, has never mentioned Pakistan's laboratories or their proliferation in public — probably out of concern of destabilizing President Pervez Musharraf, who has survived two assassination attempts in December.

"He's been a stand-up guy when it comes to dealing with the terrorists," Mr. Bush said of General Musharraf on Thursday. "We are making progress against Al Qaeda because of his cooperation." He dismissed a question about the vulnerability of Pakistan's own nuclear weapons, saying, "Yes, they are secure," then changed the subject. Yet when President Bush talks about the horrors that could unfold if a nuclear weapon fell into the hands of terrorists, it is Pakistan's combustible mix of expertise, components, fuel and fully assembled weapons that springs to the minds of American and European intelligence experts. In public, the White House says it has received "assurances" from Pakistan that if there ever were nuclear exports they are finished.

"There is this almost empty-headed recitation of assurances that whatever Pakistan did in the past it's over, it's no longer a problem," said one senior European diplomat with access to much of the intelligence about proliferation.

"But there's is no evidence that it has ever stopped."

Mohamed ElBaradei, the director general of the International Atomic Energy Agency, the United Nations organization charged with monitoring nuclear energy worldwide, contends that the recent nuclear disclosures show that the system put in place at the height of the cold war to contain nuclear weapons technology has ruptured and can no longer control the new nuclear trade.

"The information is now all over the place, and that's what makes it more dangerous than in the 1960's," Dr.

ElBaradei said.

**The Crucial Ingredient**

The biggest hurdle in making a nuclear weapon is not designing the warhead, but getting the right fuel to create an atomic explosion. One route is to extract plutonium from nuclear reactors and reprocess it to produce more fuel, known as creating a fuel cycle. The other is to extract uranium from the ground and enrich it.

The 1970 treaty on the nonproliferation of nuclear weapons was devised to control which countries could possess and pursue nuclear arms. It allowed the United States, Britain, France, the Soviet Union and China to keep all their weapons but required all other signatories to forswear nuclear arms. North Korea, Iran and Libya all signed, allowing I.A.E.A. inspectors limited visits to verify that countries producing nuclear fuel were truly using "atoms for peace." Pakistan and India never signed, nor did Israel.

Aside from inspections, spy satellites and airborne "sniffers" can usually pick out the huge complexes needed to extract spent fuel from nuclear reactors and turn it into bomb fuel. But after North Korea was caught cheating by the United States in the early 1990's and was forced into an agreement to "freeze" its reactor-and-reprocessing complex at Yongbyon, the lesson was clear: to produce bomb fuel, countries needed to take a more surreptitious route.

Uranium enrichment was the most promising, because it could take place in hidden facilities, emitting few traces. And that was the technology that Dr. Khan perfected as his laboratory raced to produce a nuclear bomb to keep up with its rival, India.

The key to the technology is the development of centrifuges. These hollow tubes spin fast to separate a gaseous form of natural uranium into U-238, a heavy isotope, and U-235, a light one. The rare U-235 isotope is the holy grail: it can easily split in two, releasing bursts of nuclear energy.

But making centrifuges is no easy trick. The rotors of centrifuges, spinning at the speed of sound or faster, must be very strong and perfectly balanced or they fly apart catastrophically.

To produce bomb-grade fuel, uranium must pass through hundreds or thousands of centrifuges linked in a cascade, until impurities are spun away and what remains is mainly U-235. The result is known as highly enriched uranium.

Dr. Khan returned to Pakistan in 1976 after working in the Netherlands, carrying extremely secret centrifuge designs — a Dutch one that featured an aluminum rotor, and a German one made of maraging steel, a superhard alloy. He was charged with stealing the designs from a European consortium where he worked.

"The designs for the machines," said a secret State Department memo at the time, "were stolen by a Pakistani national."

The steel rotor in the German design turned out to be particularly difficult to make, but it could spin twice as fast, meaning it produced more fuel.

Dr. Khan's accomplishments turned him into a national hero. In 1981, as a tribute, the president of Pakistan, Gen. Mohammad Zia ul-Haq, renamed the enrichment plant the A. Q. Khan Research Laboratories.

Dr. Khan, a fervent nationalist, has condemned the system that limits legal nuclear knowledge to the five major nuclear powers, or that has ignored Israel's nuclear weapon while focusing on the fear of an Islamic bomb. "All Western countries," he was once quoted as saying, "are not only the enemies of Pakistan but in fact of Islam."

In the years before Pakistan's first test in 1998, Dr. Khan and his team began publishing papers in the global scientific literature on how to make and test its uranium centrifuges. In the West, these publications would have been classified secret or top secret.

But Dr. Khan made no secret of his motive: he boasted in print of circumventing the restrictions of the Western nuclear powers, declaring in a 1987 paper that he sought to pierce "the clouds of the so-called secrecy." Papers in 1987 and 1988 detailed how to take the next, difficult steps in the construction of centrifuges — reaching beyond first-generation aluminum rotors to produce more efficient centrifuges out of maraging steel.

David Albright, a former weapons inspector for the I.A.E.A., said the American intelligence community viewed Dr. Khan's papers as a boast. They proved that Pakistan "knew how to build the G-2," a particularly complex design of German origin.

A 1991 paper by his colleagues at the laboratory gave more details away, revealing how to etch special grooves on a centrifuge's bottom bearing, a crucial part for aiding the flow of lubricants in machines spinning at blindingly fast speeds.

A Pentagon program that tracks foreign scientific publications has uncovered dozens of reports, scientific papers and conference proceedings on uranium enrichment that Dr. Khan and his colleagues published. While federal and private experts agree that the blitz left much confidential — including some crucial dimensions, ingredients, manufacturing tricks and design secrets — Pakistan was clearly proclaiming that it had mastered the black art.

"It was a signal to India and the West saying, 'Look, we're not the backward people you think we are,'" said Mark Gorwitz, a nonproliferation expert who tracks the Pakistani literature.

The scientific papers were soon followed by sales brochures. Much of the gear marketed by the Khan laboratory was critical for anyone eager to make Dr. Khan's kind of centrifuges. It included vacuum devices that attached to a centrifuge casing and sucked out virtually all the air, reducing friction around the spinning rotors.

In 2000, the Pakistani government ran its own advertisement announcing procedures for commercial exports of many types of nuclear gear, including gas centrifuges and their parts, according to a Congressional Research Service report published in May. Many of the items, it noted, "would be useful in a nuclear weapons program."

Former American intelligence and nonproliferation experts said the C.I.A. was aware of some, but not all, of these activities, and began tracking scientists at the Khan laboratory.

But at every turn, overt pressure was weighed against strategic interests. In the 1980's, Washington viewed Pakistan as a critical ally in the covert war it was waging against the Soviets in Afghanistan. By 1986, American intelligence agencies concluded that Pakistan had succeeded in making weapon-grade uranium, the sure sign that the centrifuges worked. But that same year, Mr. Reagan announced an aid package to Pakistan of more than \$4 billion.

### **The First Nuclear Deals**

What American intelligence agencies apparently did not understand at the time was the pace at which Dr. Khan's team was beginning to help other nations.

It started as a quid pro quo with an old patron: China. A declassified State Department memo, obtained by the National Security Archive in Washington, concluded that China, sometime after its first bomb tests in the mid-1960's, had provided Pakistan technology for "fissile material production and possibly also nuclear device design." Years later, the flow reversed. Mr. Albright, who is the president of the Institute for Science and International Security, an arms control group in Washington, has concluded that China was an early recipient of Pakistan's designs for centrifuges. China had used an antiquated, expensive process for enriching uranium, and the technology Dr. Khan held promised a faster, cheaper, more efficient path to bomb-making.

But that was just the start. Evidence uncovered in recent months shows that around 1987 Pakistan struck a deal with Iran, which had tried unsuccessfully to master enrichment technology on its own during its war with Iraq. The outlines of the deal — pieced together from limited inspections and documents turned over to the I.A.E.A. in October — show that a centrifuge of Pakistani design finally solved Iran's technological problems. That deal was "a tremendous boost," Mr. Albright and his colleague, Corey Hinderstein, said in a draft report on the Iranian program. "The possession of detailed designs could allow Iran to skip many difficult research steps," they added. The Iranian documents turned over to the I.A.E.A. make no reference to Pakistan itself; they only point to its signature technologies.

"We have middlemen and suspicions," said a Western diplomat with access to the documents. "There is a Pakistani tie for sure, but we don't know the details."

Iran's program fooled the I.A.E.A., which caught no whiff of it during 18 years of inspections. But Pakistan's role was also well hidden from American intelligence agencies.

"We had some intelligence successes with Iran, we knew about some of their enrichment efforts," said Gary Samore, who headed up nonproliferation efforts in the Clinton administration's National Security Council. "What we didn't know was the Pakistan connection — that was a surprise. And the extent of Pakistan's ties was, in retrospect, the surprise of the 1990's."

The Iranians were hardly satisfied customers. They had gotten Pakistan's older models and were forced to slog ahead slowly for two decades, foraging around the world for parts, building experimental facilities involving a few hundred centrifuges, but apparently failing to produce enough fissile material for a bomb.

If the Iranians were the turtle, the North Koreans proved the hare. Around 1997, a decade after the Pakistani deal with Iran, Dr. Khan made inroads with the government of Kim Jong Il, as it sought a way to make nuclear fuel away from the Yongbyon plant and the prying eyes of American satellites. Dr. Khan began traveling to North Korea, visiting 13 times, American intelligence officials said.

During those visits, North Korea offered to exchange centrifuge technology for North Korean missile technology, enabling Pakistan to extend the reach of its nuclear weapons across India.

Again, American intelligence agencies missed many of the signals. They knew of an experimental program, but it took evidence from South Korea to demonstrate that North Korea was moving toward industrial-level production. Then in the summer of 2001, American spy satellites spotted missile parts being loaded into a Pakistani cargo plane near Pyongyang, the North Korean capital. The parts were assumed to be the quid pro quo for the nuclear technology.

Last spring, a few months after the deal was revealed in The New York Times, the State Department announced some sanctions against the Khan laboratory but cited the illegal missile transactions. The State Department said it had insufficient evidence to issue sanctions for a nuclear transfer, a move some dissenting officials suspected was a concession to avoid embarrassing General Musharraf, who had denied that any nuclear transfers ever occurred.

A Congressional report on the Pakistan-North Korea trade notes that over the years "Pakistan has been sanctioned in what some observers deem, an 'on again, off again' fashion," mostly for importing technology for unconventional weapons, and later for its 1998 nuclear tests. Those sanctions, which were also issued against India, were waived shortly after the Sept. 11, 2001, terrorist attacks, when the United States suddenly needed Pakistan's cooperation.

It is unclear whether the Pakistan-North Korea connection has been cut off. But new evidence suggests that North Korea is still racing ahead. In April, a ship carrying a large cargo of superstrong aluminum tubing was stopped in the Suez Canal after the German authorities determined that it was destined for North Korea. The precise size of the tubes, according to Western diplomats and industry reports, suggested that they were intended for making the outer casings of G-2 centrifuges, the kind whose rotors are made of steel, and that Dr. Khan wrote about. The C.I.A. estimates that by 2005, if unchecked, North Korea will begin large-scale production of enriched uranium. But so far, American intelligence agencies say they are uncertain where North Korea's centrifuge operations are. On Friday, North Korea said it would allow a delegation of American experts into the country this week.

### **Halting Nuclear Trades**

Early in 2003, Mr. Bush established a coordinating group inside the White House to oversee the interception of shipments of unconventional weapons around the world. So far, Washington has drawn more than a dozen nations into a loose posse to track and stop shipments, and Germany, Italy, Taiwan and Japan have executed seizures. But the first interceptions — and the trail of parts and agreements they reveal — have only pointed to the mushrooming size of the secondary market in parts.

Even more worrisome are the kinds of exchanges that do not move on ships and planes, what Ashton B. Carter, who worked in the Clinton administration on North Korean issues, calls "substantial technical cooperation among all members of the brotherhood of rogues."

North Korean engineers have been sighted living in Iran, ostensibly to help the country build medium- and long-range missiles. But the growing suspicion is that the relationship has now expanded beyond missiles, and that the two nations are warily dealing in the nuclear arena as well.

"We're debating the evidence," said one administration official.

The latest nuclear disclosures came after the United States spotted a German-registered ship headed for Libya through the Suez Canal, with thousands of parts for uranium centrifuges. The interception in October of that shipment, American officials say, tipped the balance for the Libyan leader, Col. Muammar el-Qaddafi, forcing him to agree in December to disclose and dismantle his own nuclear program.

Inspectors are still investigating where Libya's components came from, focusing on manufacturers in Europe and what Dr. ElBaradei calls "interconnections" between the Libyan program and Iran's.

The intercepted shipment came from Dubai, a place of great importance in Dr. Khan's secretive world. It was a Dubai middleman claiming to represent Dr. Khan who in 1990, on the eve of the Persian Gulf war, offered Dr. Khan's aid to Iraq in building an atom bomb. And it was a Dubai middleman whom Dr. Khan blamed for supplying centrifuge parts to Iran, said a European confidante of Dr. Khan's who spoke on the condition of anonymity.

Ties between Libya and Pakistan go back years. In 1973, when Pakistan was just starting its nuclear program, Libya signed a deal to help finance its atomic efforts in exchange for knowledge about how to make nuclear fuel, said Leonard S. Spector of the Monterey Institute of International Studies' Center for Nonproliferation Studies. From 1978 to 1980, he added, Libya appears to have supplied Pakistan with uranium ore. But Libya appears to have made much less progress than the Iranians had.

Dr. ElBaradei estimates that 35 to 40 nations now have the knowledge to build an atomic weapon. In place of the nonproliferation treaty, which he calls obsolete, he proposes revising the world's system to place any facilities that can manufacture fissile material under multinational control.

"Unless you are able to control the actual acquisition of weapon-usable material, you are not able to control proliferation," he said in recent interview. But Mr. Bush and the leaders of the other established nuclear states are reluctant to renegotiate a stronger treaty because it will reopen the question of why some states are permitted to hold nuclear weapons and others are not.

For now the world is left watching a terrifying race — one that pits scientists, middlemen and extremists against Western powers trying to intercept, shipload by shipload, the technology as it spreads through the clandestine network. Mr. Bush remains wary of cracking down on a fragile Pakistan, for fear pressure could tip the situation toward the radicals.

Some in the administration say they think other nations may follow Libya's calculations and abandon their programs voluntarily. But there are doubters.

"It's a fine theory," a top nonproliferation strategist in the administration said recently. "The question for 2004 is whether the mullahs or Kim Jong Il buy into it."

*David Rohde contributed reporting from Pakistan for this article.*

<http://www.nytimes.com/2004/01/04/international/04NUKE.html>

[\(Return to Articles and Documents List\)](#)

New York Times

January 4, 2004

The Atomic Club

## **If The Bomb Is So Easy To Make, Why Don't More Nations Have It?**

By Gregg Easterbrook

Libya has pledged to dismantle its atomic weapons program. That is obviously good news, in addition to being a victory for George W. Bush's aggressive foreign policy. But what, exactly, is Col. Muammar el-Qaddafi giving up? Not much.

"Libya was in no position to obtain access to nuclear weapons in the foreseeable future," says a statement by the Federation of American Scientists, an independent group that tracks arms control issues. After visiting Libya last week, the director of the International Atomic Energy Agency, Mohamed ElBaradei, declared the country's program at "very much at an early stage." Libya may be closing down its nuclear program because it wasn't working anyway. This points to an important reality about nuclear weapons: they are extremely difficult to make. Claims that bomb plans can be downloaded from the Internet, or that fissile material is easily obtained on the black market and slapped together into an ultimate weapon, seem little more than talk-radio jabber. Nations like Libya that have made determined attempts to obtain atomic munitions have not even come close.

Saddam Hussein, while leader of Iraq, spent billions of dollars and many years pursuing atomic weapons, without success. It now appears his nuclear program was put into limbo sometime during the 1990's, perhaps for the pragmatic reason that it wasn't working. Pakistan, which may have played a role in various other bomb efforts in the developing world, had hundreds of engineers working for decades to devise its atomic device. North Korea devoted a high percentage of national resources to decades' worth of research before, probably, it acquired an atomic bomb. Iran's nuclear program, which dates to the last shah, has been working on a weapon for a quarter century so far. In Libya's case, beginning in the 1970's the government sought assistance of various kinds from Pakistan, China and the former Soviet Union. Soviet technicians helped Libya build a small research reactor at a place called Tajura. The Qaddafi regime later tried, unsuccessfully, to buy a large power-generation reactor from a Belgian company, possibly hoping it could be refitted for production of weapons material.

Last week The Wall Street Journal reported that American forces recently seized a shipload of centrifuge equipment bound for Libya. The seizure might have been a factor in Colonel Qaddafi's decision to abandon his pursuit of nuclear weapons - though Washington officials said that before the ship was seized, American intelligence agents had already quietly visited Libya, at Colonel Qaddafi's invitation, to inspect the sites that the country proposed to shutter.

Atomic bombs have proved difficult for countries like Libya to make for several reasons. The "enrichment" of uranium or plutonium to weapons-grade concentrations is a fantastically complex undertaking, involving reactors that cost billions of dollars or centrifuge facilities that are also costly and complicated. Atomic bomb engineering and fabrication involve extremely precise calculations, exotic materials and unusual specialized components that even enormous cost-is-no-object government programs in the United States and the old Soviet Union found hard to manufacture.

Attempts by developing nations to make an ultimate weapon have gone slowly even though they have concentrated on atomic bombs - the kind dropped on Japan in 1945 - rather than the far more powerful thermonuclear or hydrogen bomb, which have never been used, except in tests. (Making a hydrogen bomb involves even more complex calculations, precision manufacturing and rare substances, like the hydrogen isotope tritium. )

In 1979, a national controversy erupted when The Progressive magazine printed an article describing the hydrogen bomb's basic engineering principles. Commentators proclaimed that many nations and even individual terrorist cells would respond by building hydrogen bombs.

Yet since 1979, no nation has joined the hydrogen bomb club. After decades of work, India and Pakistan exploded only 1945-style atomic bombs. (Six years ago, India announced that it had conducted underground tests of a thermonuclear bomb, but analysts at Lawrence Livermore National Laboratory concluded that only the 1945-style atomic part of the device actually detonated.)

Both the Israeli and the now decommissioned South African ultimate-weapon programs sought atomic, not hydrogen, bombs. The engineering, construction and manufacturing challenges of the hydrogen bomb are so great that even the United States, Britain, France, China and the former Soviet Union had great difficulties fabricating it. North Korea now appears to have succeeded in making several atomic devices of the 1945 variety. It agreed last week to allow an unofficial United States delegation to visit its nuclear weapons complex, at Yongbyon, so perhaps North Korea's progress will be known soon.

Atomic weapons of the 1945 type are horrible enough, so the international threat posed by North Korean weapons may turn out to exceed any threat posed by Mr. Hussein's Iraq. But it took North Korea decades to acquire an atomic threat, even under circumstances of total national fixation on weapons development, and total government contempt for the needs of its citizens.

Iran's nuclear program continues to grow more disturbing. The nation possesses a large Russian-designed reactor called Bushehr that is expected to become operational in about two years.

"Twelve to 15 months after the reactor goes into operation, it will contain roughly 60 bombs' worth of near-weapons-grade plutonium," the Nonproliferation Policy Education Center, a nonpartisan group in Washington, recently warned.

After news reports in 2003 asserted that Iran had secret nuclear installations in a place called Kolehduz, International Atomic Energy Agency inspectors visited the location and found nothing worrisome. But last year, inspectors did find traces of highly enriched uranium at two Iranian nuclear sites, including a "pilot" enriching facility at Natanz.

Iran is known to be working on both centrifuges and lasers to enrich uranium, and has been cagey with the international agency about its importation and manufacture of some uranium byproducts related to weapons manufacturing. There seems to be a strong prospect that Iran will eventually have a bomb - but attained only after vast investments of money, time and technological skills.

Other nuclear proliferation dangers continue to mount around the world. Syria has tried to buy reactors from China and Argentina; currently, Russia is helping Syria build a small reactor that is officially for "research" purposes.

Algeria has a small reactor at a place called El Salam, and claims its purpose is to make isotopes for medical research. But the "medical" reactor is ringed by anti-aircraft missiles, and the Federation of American Scientists said in a study that the El Salam site "has a theoretical capacity to produce from three to five kilograms of plutonium a year, approximately equivalent to one nuclear weapon."

It remains possible that some government or terrorist organization could assemble a crude atomic device that would explode with far less power than the Hiroshima bomb, but with more force than any conventional munitions. And "dirty bombs" - radioactive material scattered by conventional explosives - might be effective weapons of terror. Merely the word "radiation" could set off panic in a big city, regardless of whether a dirty bomb actually dispersed enough radiation to pose general danger.

For the moment, Libya's decision to abandon its fruitless atomic program serves as a reminder that the ultimate weapon is, thankfully, not easy to come by. Numerous governments have invested billions of dollars and years of effort in trying to build atomic warheads, and have not been successful.

*Gregg Easterbrook, a senior editor at The New Republic, is the author of "The Progress Paradox: How Life Gets Better and People Feel Worse," published by Random House.*

<http://www.nytimes.com/2004/01/04/weekinreview/04east.html>

[\(Return to Articles and Documents List\)](#)

Washington Times

January 4, 2004

Pg. 7

## **Nuclear Bomb Closer Than IAEA Believed**

By Paul Wood, London Sunday Telegraph

TRIPOLI, Libya — Libya was much closer to developing a nuclear bomb than was detected by United Nations inspection teams allowed into the country last week, said British officials who have visited the country's secret weapons laboratories.

They also believe that Libya has stockpiles of the ingredients for chemical weapons and the shells and bombs to deliver them.

Though Col. Moammar Gadhafi, the Libyan leader, does not have biological weapons, Libya does have dual-use technologies to make them, British and American officials have concluded. Libya has declared it will halt these weapons programs.

"We saw uranium enrichment going ahead. We were satisfied that they were well on the way to developing a weapon," said one unidentified senior British official. "Libya was third on our list of concern after North Korea and Iran."

That comment contradicted the assessment by Mohamed ElBaradei, the head of the U.N. nuclear watchdog International Atomic Energy Agency (IAEA), on his first visit to Libya last week. At one Libyan nuclear facility, for instance, Mr. ElBaradei said that his U.N. team had found all the equipment "still in boxes."

"They were still a few years away from developing a nuclear weapon," he said. "This is a program at an early stage of development. They have not enriched any uranium, to our knowledge. They have not built any industrial-scale facility. It was all at the pilot laboratory scale."

The IAEA inspectors were taken to only four sites near Tripoli during a daylong tour. The British and American experts saw many more, spending three weeks in Libya in October and December as part of secret negotiations with Col. Gadhafi's regime.

The search is now under way to find the supplier of components for the nuclear program. British and American concern is focused on an unidentified third country, which has supplied both Libya and Iran — possibly North Korea.

An unidentified senior British official with knowledge of the secret Anglo-American inspections was confident that Libya in time would reveal to the IAEA inspectors the full extent of its clandestine nuclear program.

"At first, there were quite a lot of moments when we felt they were not being fully frank, but trust has grown," the official said. "This was a decision some time in the making. Some years ago, Col. Gadhafi realized that he was taking Libya the wrong way."

The reassessment is said to have gained momentum since the September 11, 2001, terrorism attacks — and particularly after the invasion of Iraq. The secret diplomacy began in March with an approach from Libya, just as American and British tanks were about to roll into Iraq.

Libya's concerns became clear during a visit by the British Foreign Office minister, Mike O'Brien, earlier this year. A senior Libyan official anxiously took him aside to ask if countries that gave up their weapons of mass destruction would still be "punished like Saddam Hussein."

"Mike O'Brien was able to reassure them that they would not be punished," the British official said.

<http://www.washtimes.com/world/20040103-111007-1377r.htm>

[\(Return to Articles and Documents List\)](#)

Time

January 12, 2004

**Notebook**

## **Lessons From Libya**

By Andrew Purvis and Douglas Waller

Libyan leader Muammar Gaddafi's apparent decision to come clean on his secret nuclear-weapons program could prove to be a major achievement in the world's bid to rein in rogue nuclear nations. But it has also shown how far there still is to go. Since 1980, inspectors from the International Atomic Energy Agency (IAEA) have visited Libya, a signatory of the 1970 Nonproliferation Treaty, and routinely reported that they found no evidence of a nuclear-weapons program, although they did stress that they could not guarantee their information was complete. Last week IAEA inspectors visited nine nuclear sites in Libya, four of which the agency hadn't even known existed until then — and were surprised to find ongoing efforts to build the centrifuge technology required to produce fuel for nuclear weapons.

The IAEA believes that Libya was years away from succeeding. But the agency's critics cite the revelations as more proof that the U.N. body "does a terrible job of inspecting nations that are determined to cheat," contends Paul Leventhal, founding president of the Nuclear Control Institute. IAEA officials counter that without good intelligence from the U.S. and other nations or the right to conduct spot inspections, they cannot verify a country's claims of compliance. Libya, they say, is proof that arms-control systems need to be strengthened. Mohamed ElBaradei, head of the IAEA, says the episode should trigger soul searching in countries building nuclear technology and urges a ban on uranium enrichment, except under international supervision.

Some Bush Administration officials would like U.S. and British inspectors, not the U.N., to oversee the dismantling of Libya's program. But unilateral inspections aren't likely to be acceptable, ElBaradei tells TIME. "Inspectors working for a single country have a problem of credibility," he observes. Yet some progress is being made in dealing with another rogue nuclear regime. This week a group of private citizens from the U.S. are scheduled to visit North Korea to examine its Yongbyon nuclear complex — the first such visit since U.N. inspectors were expelled a year ago.

<http://www.time.com/time/magazine/article/0,9171,1101040112-570270,00.html>

[\(Return to Articles and Documents List\)](#)



## Saudi Nukes

### *A looming intelligence failure*

By Richard L. Russell

American and international attention is focused on the nuclear weapons programs of the recent past in Iraq and Libya and of the present in North Korea and Iran. American officials would be wise not to restrict their fields of vision to these targets, lest they miss other potential nuclear weapons aspirants. One such candidate is Saudi Arabia, which is seldom mentioned as a problem country regarding nuclear weapons. Much like the movie *Casablanca*, the "usual suspects" are more readily trotted because they are at odds with American national interests nearly across the board, while Saudi Arabia shares many interests with the United States.

The Saudis have a pool of strategic interests that likely put them at odds with American counterproliferation policy. Riyadh's major regional rivals are capable, or soon will be, of threatening the Saudi kingdom with nuclear brinkmanship; Israel has the most formidable nuclear weapons capabilities in the region; Iran appears bent on acquiring nuclear weapons; and Iraq might resurrect a nuclear weapons program after the Americans depart Baghdad. The Saudi royals might also worry that the United States could become a threat to the kingdom. The Saudis, for example, might consider a scenario in which relations between Riyadh and Washington deteriorate into conflict over the methods and means to combat al Qaeda. The Saudis realize that their conventional military capabilities—notwithstanding their modern weapons inventories—would be hard-pressed to defend against the larger military manpower pools in Iran or Iraq or against the sophisticated technological capabilities of the Israeli or the American militaries. In short, the Saudis would be strategically sensible to look to nuclear weapons as a potential "quick fix" to keep rivals at bay.

The Saudis already have in place a foundation for building a nuclear weapons deterrent. In the mid-1980s, they clandestinely negotiated the purchase of about 50 to 60 Chinese CSS-2 missiles. The Chinese and Saudis were able to complete the deal before American intelligence was wise to the relationship. The Saudis paid handsomely, with about \$3 billion to \$3.5 billion dollars for the Chinese missiles capable of reaching up to about 4,000 kilometers (2,500 miles). The CSS-2s had been armed with nuclear warheads when they were operational in the Chinese force structure, but Riyadh and Beijing claim that the missiles delivered to Saudi Arabia were armed with conventional warheads and rebuffed U.S. requests to inspect the missiles. The CSS-2 missiles, however, are too inaccurate to be militarily effective with conventional munitions, but more than accurate enough for the delivery of nuclear weapons. It is well past time for Washington to renew calls for independent inspection of the Saudi missiles to ensure that they are armed as the Chinese and Saudis claim, and that ballistic missile modernization efforts are not underway.

Even if the Chinese refrained from selling nuclear warheads to the Saudis as part of the missile deal, Beijing and Riyadh could look to Islamabad to work around their ostensible commitments to the Nuclear Non-Proliferation Treaty. The Chinese are suspected of past provision of nuclear weapons designs to Pakistan, and the Pakistanis might be able to tap their Chinese-honed nuclear weapons expertise to design a warhead suitable for the Saudi CSS-2s. Recent public exposures of Pakistan's willingness to provide expertise to the nuclear weapons programs in North Korea, Iran and possibly Libya show that Islamabad's view toward nuclear weapons proliferation equates to "show me the money." Riyadh was willing to pay the Chinese lucratively for the CSS-2s and no doubt would be similarly generous in subsidizing Pakistan's nuclear weapons program in exchange for nuclear warheads.

Recent high-level official travels between Saudi Arabia and Pakistan lend some evidence of ballistic missile and nuclear weapons cooperation. Saudi Crown Prince Abdullah traveled to Pakistan in October 2003 and reportedly secured a secret agreement with President Pervez Musharraf, under which Pakistan will provide the Saudis with nuclear weapons technology in exchange for oil. The crown prince sent one of his sons to Pakistan in May 2002 to view a Pakistani ballistic missile test. And earlier still, Saudi Defense Minister Prince Sultan in May 1999 visited a Pakistani uranium enrichment facility. American intelligence officials are dismissive of "stories" of Saudi-Pakistani nuclear cooperation, citing the "absence of evidence."

Such a conclusion implies reasoning along these lines: If a tree falls in the forest and doesn't land on a CIA agent's head, the tree didn't fall. Unfortunately, the CIA's failure to detect the Saudi-Chinese missile deal, much like its more recent failure in 1998 to anticipate the Indian nuclear test that set off the arms race in South Asia, shows that trees are falling throughout the nuclear proliferation forest, but that the CIA's agents are too few and far between not to get hit on their heads. American intelligence has to work with a blend of humility in the face of raw intelligence shortcomings—especially from human sources—and an analytic toughness to push intelligence collectors to fill gaps to ensure that Saudi nuclear weapons mounted on ballistic missiles will not come to be just another entry on a longer list of intelligence failures.

*Richard L. Russell is an adjunct assistant professor in the Security Studies Program at Georgetown University.*

<http://www.washtimes.com/op-ed/20040104-102921-9166r.htm>

[\(Return to Articles and Documents List\)](#)