U.S. SECURITY POLICY TOWARD ROGUE REGIMES

HEARINGS

BEFORE THE

SUBCOMMITTEE ON
INTERNATIONAL SECURITY, INTERNATIONAL
ORGANIZATIONS AND HUMAN RIGHTS

OF THE

COMMITTEE ON FOREIGN AFFAIRS
HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRD CONGRESS

FIRST SESSION

JULY 28 AND SEPTEMBER 14, 1993

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U.S. SECURITY POLICY TOWARD ROGUE REGIMES

WEDNESDAY, JULY 28, 1993

HOUSE OF REPRESENTATIVES,
COMMITTEE ON FOREIGN AFFAIRS,
SUBCOMMITTEE ON INTERNATIONAL SECURITY,
INTERNATIONAL ORGANIZATIONS AND HUMAN RIGHTS,
Washington, DC.

The subcommittee met, pursuant to call, at 10:05 a.m. in room 2172, Rayburn House Office Building, Hon. Tom Lantos (chairman of the subcommittee) presiding.

Mr. LANTOS. The Subcommittee on International Security, International Organizations and Human Rights will come to order, please.

Today, the subcommittee has the extraordinary pleasure of having the Director of Central Intelligence, Mr. James Woolsey, as our guest and our witness for this hearing on U.S. security policy vis-a-vis "Rogue Regimes."

The "Rogue Regimes" are the international bomb-throwers, countries which are on the periphery of the international system, countries which have little stake in international order and are seeking through various reprehensible means to disrupt that order.

These are the countries that are usually on the U.S. list of state sponsors of terrorism, countries that are under sanctions imposed by the United Nations for irresponsible and unacceptable international behavior.

The "Rogue Regimes," as I am using the term, are not necessarily a constant list. The regimes that would be included shift over time. At present, I personally would include in the list of such regimes Iran, Iraq, Libya, Syria, North Korea, Cuba, Serbia, the Sudan, and possibly Burma.

I suspect that others might add additional countries or drop certain ones. The general profile of these countries, however is quite clear from the description.

The most serious threat that is posed by some of these "Rogue Regimes" is the effort that many have made to acquire nuclear weapons. In the last few months, we have witnessed the deadly seriousness of the threat to international security from the acquisition of nuclear weapons by some of these international renegades.

North Korea has announced its intention to withdraw from the nuclear nonproliferation treaty among very clear indications that it has established a major nuclear weapons development program. While some recent developments might offer a bit of hope, we will

need some actions before we can rest more securely with respect to the intentions of North Korea.

Internationally supervised inspections of Iraq, required by the United Nations after the Gulf War, have established in clear certainty the frightening detail of how close Iraq was to possessing the capacity to produce nuclear weapons. Reports of Iranian efforts to purchase nuclear weapons, acquire nuclear expertise from some of the former Republics of the former Soviet Union indicate the very high priority the Ayatollahs have given to acquiring nuclear weapons.

The spread of nuclear weapons is always an extremely serious concern, but the spread of nuclear weapons to these irresponsible regimes is a global threat of the highest order. It is one of the principal concerns of this subcommittee and of the American people.

We are extremely fortunate to have with us today Mr. James Woolsey, Director of Central Intelligence. Our Nation is extremely well served to have a man of Mr. Woolsey's experience, intelligence, discernment and extraordinarily extensive experience for this key assignment.

[The prepared statement of Mr. Lantos appears follows:]

OPENING STATEMENT OF HON. TOM LANTOS, CHAIRMAN, SUBCOMMITTEE ON INTERNATIONAL SECURITY, INTERNATIONAL ORGANIZATIONS AND HUMAN RIGHTS

The Subcommittee on International Security, International Organizations and Human Rights will come to order. Today, the subcommittee has the pleasure of having the Director of Central Intelligence, James Woolsey, as our guest and witness for this hearing on U.S. Security Policy and the "Rogue Regimes."

The "Rogue Regimes" are the international bomb-throwers, countries which are on the periphery of the international system, countries which have little stake in international order and are seeking through various reprehensible means to disrupt that order. These are countries that are on the U.S. list of state sponsors of terrorism, countries that are under sanctions imposed by the United Nations for irresponsible international activity.

The "Rogue Regimes," as we are using the term, are not necessarily a constant list and the regimes that would be included shift over time. At present, I would include in the list of "Rogue Regimes" Iran, Iraq, Libya, North Korea, Cuba, Syria, Serbia, the Sudan, perhaps Burma. I suspect that other might drop some of these countries and include others. The general profile of the countries we are considering, however, is quite clear from this description.

The most serious threat that is posed by some of these "Rogue" nations is the effort some have made and several are now making to acquire nuclear weapons. In the last few months, we have witnessed the deadly seriousness of the threat to international security from the acquisition of nuclear weapons by some of these international renegades.

North Korea has announced its intention to withdraw from the Nuclear Nonproliferation Treaty amid very clear indications that it has established a nuclear weapons development program. The Government of South Africa announced that is had not only established a nuclear weapons program, but that it had actually built a number of nuclear weapons without the knowledge of the rest of the world. Internationally supervised inspections of Iraq, required by the United Nations after the Gulf War, have established in frightening detail how near Iraq was to possessing the capacity to produce nuclear weapons. Reports of Iranian efforts to purchase nuclear weapons or acquire nuclear expertise from some of the republics of the former Soviet Union indicate the high priority which the Ayatollahs have given to acquiring nuclear weapons.

The spread of nuclear weapons is always an extremely serious concern, but the spread of nuclear weapons to these irresponsible regimes is a threat of the highest order, and one of my principal concerns and it should be one of the principal concerns of the American people and of the administration.

We are fortunate to have with us today at this hearing, R. James Woolsey, the Director of Central Intelligence. Our Nation is well served to have a man of Mr. Woolsey's discernment and extensive experience in this key position. Director Wool-

sey, we are delighted to have you with us today, and we are most appreciative of your testifying today in view of your very heavy schedule.

Before we begin with Mr. Woolsey's statement, I would like to call on my colleague from Nebraska, the ranking Republican Member of the subcommittee, Congressman Doug Bereuter, for any opening remarks he would care to make.

Director Woolsey, your full written testimony will be placed in the record in its entirety. You may proceed as you wish with your oral statement.

Mr. LANTOS. Before I call on Director Woolsey, I would like to call on my friend and colleague, the Ranking Republican, the distinguished representative from Nebraska, Mr. Bereuter.

Mr. BEREUTER. Thank you, Mr. Chairman. I commend you very highly for scheduling this timely and important hearing, and a very special and warm welcome to Director Woolsey who is performing in extremely able fashion in his current responsibilities.

During the past 4 years, I have had the privilege and responsibility to be one of the two members of the Foreign Affairs Committee to serve on the House Permanent Select Committee on Intelligence. Serving on that select committee, I believe one gains an appreciation for the diverse challenges that our intelligence service must face on the myriad of issues that must be mastered.

It is a daunting challenge, one requiring diverse skills and intelligence collection modes plus special leadership to coordinate and use the best efforts, best effect of our numerous elements of the intelligence community. Sometimes we forget about the fact he is the director of the intelligence community, and not just the CIA.

I believe, in general, our intelligence service has provided excellent and timely information and that we work well with our friends and allies in intelligence collection and analysis.

Frankly, there have been times recently where the intelligence community has had the proper information, the best insight on emerging issues; and it has not been used effectively by policymakers.

At today's hearings, we turn toward the regimes that create especially difficult problems, both in terms of interpreting their intentions and their capabilities. The "Rogue Regimes" are those that have no commitment to the existing international order. "Rogue Regimes" play by their own rules. Their behavior is difficult to predict and hard to deter.

One of the problems with "Rogue Regimes" is that we understandably do not have a good sense of what deters them. When we faced the former Soviet Union, we had a clear understanding of what it would take to deter adventurism by Brezhnev or Khrushchev. It seems more difficult to deter Saddam Hussein or Qadhafi.

"Rogue Regimes" present a particular problem in light of weapons of mass destruction. The chairman made reference a minute or two ago to the threat posed by North Korean actions with regard to nuclear proliferation. I have a particular concern regarding this, what some people call "loose nukes" emanating from the former Soviet Union. There are press reports of Libyan and Iranian representatives trying to hire Russian physicists. I hope that you, Director Woolsey, would be able to address this issue at least briefly here today in a public forum.

I also note that presenting his initial list of rogue nations, the chairman added a few new names a couple of days ago, Serbia and

Sudan. Unfortunately, he is correct in adding these to the list of pariah states. It seems numerous names go on the list, but few come off. This leads to the question of how we can keep them from their outlaw behavior.

These are important questions that you pose and that I have supplemented. Mr. Chairman, I know we have one of the best people in our Government to help us address these issues here today. Therefore, I am especially interested in looking forward to the testimony of the director, Mr. Woolsey.

Thank you for being with us.

Mr. LANTOS. Thank you very much.

Mr. Faleomavaega.

Mr. FALEOMAVAEGA Mr. Chairman, I appreciate very much your invitation of having other members of our committee listen to Mr. Woolsey's statement this morning. I want to commend you also for calling this important hearing. Although I am particularly involved with the Asian and Pacific Subcommittee on Foreign Affairs, I do notice some of these countries we will be discussing this morning do fall within their jurisdiction.

I do have very serious questions on the current situation involving Iraq, what companies, what corporations are the ones that have been provided the Iraqi Government with the materials to develop nuclear capability. It seems perhaps of no surprise to many of us that it comes from Western companies. I am curious, perhaps later on with further investigations, how Iraq was able to come this far with its nuclear development.

The question is somewhat of an irony, Mr. Chairman, perhaps also Mr. Woolsey can enlighten us further, the irony of all of this is that the United States is the largest seller, supplier of military weapons in the world. Maybe this is something we also need to, in introspection, look at what our policies are toward the area of nuclear capability.

We are saying, let's prevent proliferation, but at the same time we are, on the other hand, the biggest—one of the biggest sellers of military equipment to Third World countries. I wonder if maybe Mr. Woolsey can assist us in that in terms of what exactly is our policy.

The question also of the effectiveness of IAEA's capability to oversee countries that supposedly have nuclear weapons or nuclear development as is processed, this has been one of the serious issues that has come out of the United Nations; but, Mr. Chairman, again I thank you for the opportunity. I am looking forward to hearing from Mr. Woolsey.

Thank you.

Mr. LANTOS. Thank you very much.

Congressman Smith.

Mr. SMITH. I want to thank you, Mr. Chairman, for scheduling this hearing and welcome Director Woolsey to this subcommittee. I think it is important that this committee be fully apprised of ongoing threats to our security and to that of our allies.

Mr. Chairman, the promise of a more stable, secure, and peaceful world which we all felt at the end of the cold war has been largely shattered because of the continuing problems, hot spots, if you will, throughout the world. Bosnia comes to mind. The unstable situa-

tion in North Korea vis-a-vis the South. A host of all other areas, the Sudan, the Middle East remains a hot spot.

Hopefully, with the right combination of diplomacy, deterrence and good intelligence, we can hopefully deter threats from manifesting themselves and as a consequence ourselves getting involved in warfare and things like that.

I think this hearing is very important and look forward to Director Woolsey's comments.

Mr. LANTOS. Thank you very much.

Congresswoman Snowe.

Ms. SNOWE. Thank you, Mr. Chairman. I would like to welcome our witness, Mr. Woolsey, here this morning. This is a very timely hearing. Certainly, when we are considering the intelligence authorization, but also in the post-cold war era and the issues of intelligence, I think they become more critical and imperative. I want to welcome our witness here this morning.

Mr. LANTOS. Thank you very much.

Before calling on the director, let me thank the outstanding work done by the staff of this subcommittee on both Democratic and Republican side. Ken Timmerman, Maryanne Murray, Mike Ennis and our staff director, Dr. Robert King.

The Director of Central Intelligence usually works in the background. I suspect many of the American people typically do not know the director's background. Let me spend a moment before calling on Mr. Woolsey to say a word about him.

He is a native of Tulsa, Oklahoma. He received his bachelor's degree with greatest distinction from Stanford University, which before reapportionment was part of my domain. He received a master's degree from Oxford. He is a Rhodes Scholar; and he has a law degree from Yale.

He served with great distinction in the U.S. Army as a captain, was adviser to the U.S. delegation to the Strategic Arms Limitation Talks in both Helsinki and Vienna.

He served as a program analyst in the Office of the Secretary of Defense and on the National Security Council staff. For years, he was General Counsel to the U.S. Senate Committee on Armed Services, and I am skipping a lot of his private endeavors.

He served as our Ambassador to the negotiation on Conventional Armed Forces in Europe and a group of my colleagues and I had the pleasure of being briefed by him in a remarkably interesting session there some years ago.

He is Director of Central Intelligence and he has brought a degree of openness to this very important entity that has involved probably more Members of Congress than we have ever seen in the history of the agency.

Director Woolsey, we are delighted to have you. Your prepared statement will be entered in the record in its entirety. You may proceed any way you choose.

STATEMENT OF R. JAMES WOOLSEY, JR., DIRECTOR OF CENTRAL INTELLIGENCE

Mr. WOOLSEY. Thank you, Mr. Chairman. I am delighted to be here. I have Larry Gershwin, our National Intelligence Officer for

Strategic Problems and Gordon Oehler Director of our Nonproliferation Center.

Mr. LANTOS. Pleased to have both of you.

Mr. WOOLSEY. Following my prepared statement, if it is all right, I will ask them to join me at the table. Between the three of us, we will endeavor to answer here in open session everything that we can; but as I am sure you and the members of the committee are aware, intelligence sources and methods protection really dictates that a number of questions in this area be dealt with in executive session.

We are available at the call of the Chair today or at a later time for that.

I do welcome the opportunity to speak to you this morning about the proliferation of weapons of mass destruction, nuclear, biological and chemical. Few issues have more serious and far-reaching implications for global and regional security and stability than the spread of these weapons.

As you are aware, I testified in some detail to the Senate Government Affairs Committee in February of this year. Much of my statement in that hearing remains valid today, but a full picture requires some repetition. There are a number of developments on which I can provide updates.

Before I begin, I would like to emphasize that although I believe speaking openly on the critical issue of the proliferation of weapons of mass destruction is important and useful, I must balance that objective with my responsibilities to protect sources and methods.

I would like to begin by briefly outlining a few significant developments since February.

NORTH KOREA

First, North Korea, which I identified earlier this year as our most urgent national security threat in East Asia, continues to be of great concern. I cannot go into much additional detail because of the ongoing discussions with the North Koreans.

North Korea's decision to suspend its withdrawal from the NPT was certainly welcome, and we hope it portends a more cooperative attitude and greater willingness to submit to its commitments under the NPT. This includes cooperating with the IAEA to maintain inspections.

Clearly, we are not out of the woods.

Mr. LANTOS. If I may stop you for a second, I think it is useful initially to identify the NPT as the nonproliferation treaty and the IAEA as the International Atomic Energy Agency.

Mr. WOOLSEY. Absolutely.

Clearly, Mr. Chairman, members, we are not out of the woods on this issue with North Korea yet. Progress is going to depend on North Korea's following through with productive discussions with the IAEA. I must stress that our assessment that the North Koreans could have produced enough plutonium for at least one nuclear weapon still applies. Thus, this issue continues to require everyone's closest attention.

When I testified in February, I described a new North Korea missile with a range of about 1,000 kilometers that was still in the development stage. I can now confirm that the North Koreans re-

cently tested the missile, which in addition to conventional warheads, is capable of carrying nuclear, chemical, or biological payloads. Of greatest concern is North Korea's continued efforts to sell the missile abroad—particularly to dangerous and potentially hostile countries such as Iran.

Deployment of this missile will provide an important increase in the capabilities of various countries to attack their neighbors. With this missile, North Korea could reach virtually all of Japan; Iran could reach Israel; and Libya could reach U.S. bases and allied capitals in the Mediterranean region.

IRAQ

The situation in Iraq has also changed somewhat since I last spoke publicly. Upon his return from Iraq, Ambassador Rolf Ekeus, Chairman of the U.N.'s Special Commission, announced that Iraq had agreed to the U.N.'s demand to install cameras at a missile facility and, most importantly, to accede to long-term monitoring under U.N. Resolution 715.

More details will become available in the coming weeks as UNSCOM formulates the U.N. response to Iraq's position and discusses the mechanics of long-term monitoring with the Iraqis. While Iraq's recent statements offer some promise, I am reminded that we have heard positive sounds from Iraq before, with little or no follow-through.

It has been a long and frustrating 2 years for the rest of the world, during which time Iraq has doggedly prevented the U.N. from implementing the Security Council's mandate. As with North Korea, we will have to measure Iraq's true intentions by deeds, not words.

Meanwhile, the U.N. continues its work in Iraq, dismantling prohibited programs for weapons of mass destruction. Iraq's harassment of inspectors has not deterred the U.N. from continuing to destroy a vast chemical munitions and agent stockpile, to dig out details about past activity, and to search for hidden missile, biological, and nuclear capabilities.

Iraq's programs for weapons of mass destruction were heavily damaged by coalition attacks during Desert Storm. Nearly 2 years of intrusive U.N. inspections and the imposition of strict international sanctions have set back their efforts as well. Iraq has struggled to maintain important elements of each program, hoping to outwait the United Nations and to rebuild its infrastructure for weapons of mass destruction once inspections and sanctions cease.

We will continue to support strongly the multilateral effort to implement all relevant U.N. resolutions. Neither we nor the U.N. have lost sight of the basic fact that critical elements of Iraq's programs remain hidden. Therefore, intrusive inspections remain an important element of any monitoring regime.

FORMER SOVIET UNION

Another key area, and one that continues to be of great concern, is the dissolution of the Soviet Union and the resulting opportunities for proliferating countries to acquire sensitive technologies and material. This is a regular subject for media speculation. Sensational stories about sales of nuclear weapons, fissile material, and

strategic missiles from the states of the Former Soviet Union are becoming commonplace. We continue to check out each one, but have not, to this point, detected the sale or transfer of significant nuclear material, nor the sale or transfer of the weapons themselves.

We also continue to receive reports of brain drain from the former Soviet Union. Delays in pay, deteriorating working conditions, and uncertain futures are apparently spurring Russian specialties to seek emigration despite official restrictions on such travel. We also treat each of these reports seriously and attempt to determine the veracity of each.

We continue to be concerned with a number of agreements under consideration by the Russian Government that involve transferring technology—particularly several being negotiated with Iran for nuclear-related technology and reactors. Given Iran's ambitions to develop nuclear weapons, we must assume that any assistance to Tehran in the nuclear arena could assist their development of a nuclear weapons capability.

IRAN

Indeed, our concerns about Iran's intentions to dominate the region, its potential threat to U.S. interests and allies in the Middle East, and its military buildup, have not diminished since I last spoke on this subject in February. Iran still poses a potential threat to its smaller neighbors and to the free flow of oil through the Gulf. It continues to support terrorism as an instrument of international policy.

And Iran's ambitious effort to develop its military and defense sectors includes a serious, determined program to develop all categories of weapons of mass destruction. Unable to obtain what it wants from the West, Iran has increasingly looked to Asian sources for aid—to North Korea for long-range Scuds, shorter and medium-range ballistic missiles, and now the 1,000 kilometer range missiles and to China for a variety of other dangerous technologies.

Iran's nuclear weapons program remains at a relatively rudimentary stage. We continue to believe that Iran probably will take at least 8 to 10 years to build its own nuclear weapons, and progress will depend on foreign assistance. Knowing Iran's hostile intentions, any requests for potentially sensitive technology or material must be viewed with great suspicion, even when it is claimed that such material is destined for legitimate civilian uses.

OVERVIEW OF PROLIFERATION PROBLEMS

Now I would like to briefly present a general overview of the proliferation problems we face. A growing number of countries are seeking advanced weapons, including nuclear, chemical, and biological weapons, as well as missiles to deliver them. As international awareness of the problem grows, these countries are becoming increasingly clever in devising networks of front companies and suppliers to frustrate export controls and to buy what would otherwise be prohibited to them.

The challenge we face in controlling proliferation is complex and multifaceted. We must decipher an intricate web of suppliers, middlemen, and end users. We must distinguish between legitimate

and illicit purposes, particularly for dual use technology. And we must help interdict the flow of material, technology, and know-how to potential proliferating countries.

We do not expect any nations beyond Russia and China to bring together the requisite materials, technologies, facilities, or expertise to develop and produce ICBM's capable of striking the United States during this decade. Several nations with space launch capabilities could modify those launchers to acquire a long-range ballistic missile, but we do not expect any nation now having space launch vehicles—India, Israel, and Japan—to do so.

After the turn of the century, however, some nations that are hostile to the United States may be able to develop indigenously ballistic missiles that could threaten the United States. We also remain concerned that hostile nations will try to purchase from other states ballistic missiles capable of striking the United States. A shortcut approach—prohibited by the Missile Technology Control Regime and Nuclear Proliferation Treaty—would be to buy ICBM components covertly, together with suitable nuclear warheads or fissile materials. The acquisition of key production technologies and technical expertise would speed up ICBM development.

Meanwhile, the threat from theater ballistic missiles is current, real, and growing. For decades now, the international community has worked from the premise that the more countries that possess these weapons, the greater the likelihood they will be used.

Just a brief overview of proliferation concerns around the globe underscores the threat posed to the United States, to our interests abroad to our friends and allies. This overview will also underscore the importance of stemming this trend.

More than 25 countries, many of them hostile to the United States and to our friends and allies, may now have or be developing nuclear, biological, and chemical weapons, and the means to deliver them.

Aside from the five declared nuclear powers, several countries have, or are developing nuclear weapons capabilities. Iraq and Iran, for example, have the basic technology to develop eventually such weapons.

More than two dozen countries have programs to do research on or develop chemical weapons, and a number have stockpiled such weapons, including Libya, Iran, and Iraq. The military competition in the always volatile Middle East has spurred others in the region to pursue chemical weapons. We have also noted a disturbing pattern of biological weapon development following closely on the heels of the development of chemical weapons.

More than a dozen countries have operational ballistic missiles, and more have programs in place to develop them. North Korea has sold Syria and Iran extended range Scud Cs, and has apparently agreed to sell missiles to Libya. Egypt and Israel are developing and producing missiles, and several Persian Gulf states have purchased whole systems as well as production technology from China and North Korea. Some have equipped these missiles with weapons of mass destruction, and others are striving to do so.

TERRORIST THREAT

So far, I have addressed the dangers of nations acquiring or developing weapons of mass destruction, but we must also anticipate the possibility that hostile groups, specifically terrorist groups, might acquire these weapons with or without state sponsors. Certainly the bombing of the World Trade Center in New York last February has heightened our sensitivity to the prospect that a terrorist incident could involve weapons of mass destruction.

I would like to stress that we have no evidence that terrorists currently are developing or attempting to acquire such weapons. The extreme risk and complexity of handling these weapons suggest that they would not necessarily be the terrorist weapon of choice.

Nuclear weapons would be especially difficult for a terrorist organization to develop, acquire, or use. Terrorists would need a considerable amount of sophistication to transport and activate these weapons. Chemical and biological weapons, on the other hand, have always proven to be more accessible because the materials are cheaper, more readily available, and have more dual-use functions. Consequently, the acquisition of components to produce chemical and biological weapons is more difficult to track and counter even though the export of certain key materials are restricted.

While we have no evidence of any weapons of mass destruction in the hands of terrorists, we must remain alert to the possibility that such groups might acquire them. The enormous destructive power that could be wrought by a small, but hostile element beyond or within, I might add, the control of a central government, compels our attention.

MOST DANGEROUS PROLIFERATION THREATS

Let me now briefly describe some of the causes of proliferation and outline some of the most dangerous proliferation threats.

Nations continue to seek these weapons for a wide variety of reasons. Most nations perceive real benefits from the destructive power these weapons represent to their national security. Others value them for the prestige that leaders believe they convey, while some seek them to dominate their neighbors. A few countries, such as Iraq, develop these weapons not just for symbolic reasons, but to actually use—against their enemies in war or, tragically, on their own people. Others think that the only way to offset a hostile neighbor's threatening weapons is to develop similar capabilities. We can see this particularly in South Asia, where mutual Indian and Pakistani suspicions have fueled a nuclear arms race, increased the risk of conflict, and gravely increased the cost of war if war occurs. Still others view these weapons as a way to buy security on the cheap, a shortcut to achieving a military capability that they believe will serve as a compelling psychological deterrent.

Russia's ability to maintain control of its special weapons and associated technologies has somewhat weakened under the stresses and strains of the Soviet breakup. Today's faltering CIS economy and the attendant hardships among individuals with military and scientific expertise could lead to more disturbing military transfers and could also encourage illegal exports of technology or material.

Tens of thousands of former Soviet scientists were involved in sensitive weapons programs; many may be tempted by more lucrative work abroad. The current emigration and customs bureaucracies cannot monitor more than the most critical personnel.

Since I last testified, the news on export controls in Russia and other former Soviet states has been mixed. President Yeltsin apparently is trying to tighten controls on strategic materials, but at the same time economic pressures are prompting other Russian officials to oppose implementing more rigid export regulations. These economic nationalist pressures are causing some Russian and Ukrainian officials to question the wisdom of adhering to the Missile Technology Control Regime. In a recent arms show in Moscow, the Russians advertised a derivative of the old SS–23 for sale as a civilian rocket, raising additional MTCR concerns. Moreover, at an arms show in Abu Dhabi earlier this year, the Russians advertised an improved warhead for the Scud—an unwelcome development indeed, given the already widespread proliferation of this missile.

Resolving the dispute over control of strategic forces in Ukraine remains critical to establishing a more stable security environment. We face a critical period as Russia attempts to maintain control over all of the some 27,000 tactical and strategic nuclear warheads within the former Soviet Union, in the face of political difficulties, violence on its borders, and the possibility of disruptions within Russia itself. Although to date we believe that all of the tactical warheads have been returned to Russia, nearly 3,000 strategic warheads remain outside Russia.

The Russians continue to maintain strong centralized control of their nuclear forces, and we think that under current circumstances there is little prospect of a failure of control. But we are concerned about the future. Leaders in Russia and the other three states where the warheads are located have pledged to destroy much of the former Soviet stockpile, but it will take more than 10 years to do so unless the process can be speeded up.

The former Soviet Union is by no means the only source for countries seeking sensitive technology and materials for weapons of mass destruction. For every shipment we stop from other countries, new suppliers seem to appear, willing to manufacture, broker, sell, and transport material to any and all clients, no matter how dangerous or unsavory. And while we have witnesses progress on controlling the supply side of the equation, we detect little reduction in the demand for weapons of mass destruction. As long as nations perceive these weapons as enhancing their security, and others are willing to sell them, we will all have our work cut out for us. Nations that seek these weapons, such as Iran, Iraq, and North Korea, aren't going to give up because we reorganize or because we claim that we are more effective.

LIBYA

Mr. Chairman, several other problem areas are also of concern and worth mentioning briefly. Libya continues to try to import technologies for its missile programs, and certainly no one has forgotten Colonel Qadhafi's public statement about his quest for a nuclear bomb.

Even as it publicly proclaims its good intentions, Libya is constructing a second chemical weapons production facility. The new facility recently described in the media is yet another indicator of the extent to which Libya—apparently unchastened—will go to evade international attempts to prevent its development of chemical weapons.

Fortunately, the U.N. sanctions imposed in the aftermath of the Pan Am 103 incident are assisting nonproliferation efforts. Earlier this year, the U.N. sanctions committee blocked a shipment of chemical reactors destined for Libya, recognizing officially for the first time that Libya has an offensive chemical weapons program.

Mr. LANTOS. May I stop you on that point for a second?

Mr. WOOLSEY. Yes, Mr. Chairman.

Mr. LANTOS. From what country did that shipment to Libya originate?

Mr. WOOLSEY. It was Malaysia, Mr. Chairman.

Mr. LANTOS. Thank you. Malaysia, I take it, was a transit point. It didn't originate in Malaysia. Malaysia presumably bought it someplace?

Mr. WOOLSEY. As far as we know, it was manufactured in Malaysia.

Mr. LANTOS. As far as you knew, it was manufactured in Malaysia?

Mr. WOOLSEY. Yes.

Mr. LANTOS. Thank you.

Mr. WOOLSEY. The U.N. found that the dual use equipment was destined for a military program and thus was prohibited under U.N. sanctions. Libya also continues its efforts to develop a ballistic missile capability, and to this end is scouring the West for technology and assistance. Only strict scrutiny and constant attention has prevented the Libyans from acquiring what they need.

INDIA AND PAKISTAN

The arms race between India and Pakistan poses perhaps the most probable prospect for future use of weapons of mass destruction, including nuclear weapons. Both nations have nuclear weapons development programs and could, on short notice, assemble nuclear weapons. Neither India nor Pakistan seems to scrimp on resources for their expensive military programs, despite their economic conditions and widespread poverty among their citizens. India's program, older and probably larger than Pakistan's, culminated in 1974 with a nuclear detonation, and we are convinced has progressed from there.

A nuclear exchange on the subcontinent would be devastating. Millions of innocent civilians in this densely populated region would be vulnerable, particularly as each side strives to develop missiles which can reach deeper into the other's territory, putting at risk major population centers, including Islamabad and New Delhi.

CHINA

China is also a major proliferation concern, as an alternative supplier when Western export controls make technology and weapons more difficult to acquire. China acceded to the Nuclear Non-

proliferation Treaty and agreed to abide by the Missile Technology Control Regime last year. More recently, it signed the Chemical Weapons Convention. These are all positive developments, but we remain watchful for signs that China is not living up to its commitments. The breadth of Chinese contacts with potential proliferators makes detecting and confirming potentially dangerous transactions difficult.

As Iran's principal nuclear supplier, China has supplied research reactors and other technology. While China's dealings with Iran have been consistent with the NPT, it is of concern nonetheless given Iran's pursuit of a weapons capability.

On the other hand, China's relationship with Pakistan is of greater concern. I am sure you have noted the press over the past 6 months covering China's reported sales of missiles to Pakistan. We are concerned about reports that indicate China has transferred M–11 related missile equipment to Pakistan, and we are monitoring this issue carefully. We are also concerned about Beijing's missile and chemical transfers to the Middle East.

I wish I could come to you, less than half a year after my last testimony on this subject, with better news and report that we have witnesses great strides toward solving the problem of proliferation. But once again, I have painted a rather bleak picture because I am afraid accuracy and candor require bleakness. The spread of nuclear weapons capabilities is of utmost concern because of the horrible destructive capacity. It will put millions of innocent civilians at risk and dramatically change regional security landscapes wherever these weapons are introduced.

A North Korean nuclear weapon would threaten our allies in all of Asia as well as U.S. forces in the region. Iraq's indiscriminate use of chemical weapons in its war with Iran underscored the urgency in our efforts to stop the spread of and ultimately banish this whole class of weapons. And lastly, countries persist in pursuing biological weapons development, one of the most troubling capabilities of all, despite a strong international consensus to the contrary.

INTELLIGENCE COMMUNITY ACTIVITIES

The Intelligence Community recognizes the urgency of this problem and is responding to the increasing threat and to the ever-increasing demands of our intelligence consumers for information on this vital issue. Indeed, by drawing attention to this issue, we are seeing a growing awareness in the international community about the dangers of proliferation and an increasing willingness to cooperate multilaterally to stem the spread. As a result, we are all making it more difficult for proliferating nations to develop dangerous weapons programs.

A nonproliferation initiative last year set forth principles to guide our nonproliferation efforts. The Intelligence Community was instructed to accelerate its work in support of U.S. efforts to stem the spread of weapons of mass destruction, and to broaden our support to international organizations and increase the pool of experienced, well-trained experts committed to the nonproliferation agenda.

The Nonproliferation Center, formed about 1 year ago, is focusing our efforts in the crucial area and improving our support to the

policy, operations, licensing, and enforcement agencies. And we are making some progress. But this is a complex issue which cannot be tackled easily or quickly. It requires a long-term commitment, patience, and perseverance.

A virtue of intelligence is no longer measured only by how much it adds to our knowledge of a particular subject. It is also measured by how we have directly contributed to United States and multilateral actions to stop proliferation.

A number of the questions in which the committee has expressed interest address the Intelligence Community's ability to contribute directly to countering proliferation and developing actionable intelligence to enable us to track and, ultimately, to interdict the flow of dual-use technology.

Mr. LANTOS. Would you define actionable intelligence, Mr. Director?

Mr. WOOLSEY. Intelligence which would lead the United States or its allies actually to take action in the short run to stop something that is underway. For example, Mr. Chairman, intelligence that a company in an European—friendly European country was, unbeknownst to that country, exporting some dual use technology that was destined for a chemical weapons program; thus enabling the United States to take action by a demarche, let's say, approaching the country in question and letting it have the information to activate its export control regime.

Mr. LANTOS. Thank you.

Mr. WOOLSEY. We have put a heavy emphasis on collecting this type of information, and are making every effort not only to improve access to it within our own government, but also to increase sharing among allies who, given the right information, can and do contribute to our common goal. Already, the United States is discovering a willingness among nations to take decisive action against proliferators.

ROLE OF THE UNITED NATIONS

I know you are interested in U.S. support for international organizations. The U.N.'s actions in North Korea and in Iraq illustrate how multinational support to international organizations has broadened the mission of the Intelligence Community. We have seen some remarkable changes in the world in just the past few years, with the U.N. taking a much more active role on the international scene in the aftermath of the cold war.

This should grow in the future due to new international agreements such as the Chemical Weapons Convention and to strengthened existing agreements such as the Nuclear Nonproliferation Treaty, the Biological Weapons Convention, and the Missile Technology Control Regime.

These agreements are attracting more attention and wider membership, and we are seeing stricter enforcement. These agreements will require the full support of all member states, not just the United States, to monitor compliance and ensure enhanced global security. We intend to cooperate aggressively and productively. The United States, among many other nations, remains committed to providing the U.N. the information and support it needs to complete its mission in Iraq and elsewhere.

Working closely with the State Department, we have shared an unprecedented amount of information with the United Nations, assisting them in completing their new missions.

Clearly, strengthening the IAEA must go hand-in-hand with renewing and reinforcing the Nonproliferation Treaty. We have already witnesses a new willingness by the agency to pursue safeguards inspections more aggressively.

Mr. Chairman, I would like to close on a not of optimism, however tempered with caution. During the past 2 years, three nations—France, South Africa, and China—became new signatories of the NPT. Membership in other multilateral institutions such as the Australia Group and the Missile Technology Control Regime is expanding. Argentina is interested in joining the MTCR and is dismantling its Condor missile program. Germany, once a high technology supermarket for a range of troubling exports and countries, has enacted strict export controls.

We have made some important headway in making the proliferation of weapons of mass destruction a more difficult, expensive, and lengthy proposition. Obtaining these troubling capabilities today is a much more difficult task than it was a few years ago.

I believe the Intelligence Community has made significant progress on this. Throughout our approach and our continued cooperation with other agencies involved in policy, enforcement, licensing, and operations, we are setting the state that will allow us to make further progress in countering proliferation activities worldwide.

Mr. Chairman, that concludes my statement.

[The prepared statement of Mr. Woolsey appears in the appendix.]

Mr. LANTOS. Thank you very much, Director Woolsey. This was a very sobering—what the French call tour de raison—tour of the horizon. I am sure we will have a lot of questions to ask.

IT'S SHORTSIGHTED TO CUT THE INTELLIGENCE BUDGET NOW

I suspect the first thought that comes to mind is that attempts by some in the Congress to significantly cut the intelligence budget are unbelievably shortsighted. Clearly, the task you and your agency have, have become more complex and in many ways far more sophisticated in the post-cold war world than during those happy, stable times when the Soviet Union was the overwhelming focus of our attention.

Would you care to comment on the budget issue?

Mr. WOOLSEY. Mr. Chairman, you served me one at three-quarter speed right across the middle of the plate.

Thank you very much.

I think some people, when they look at the end of the cold war, make a very fundamental mistake in assessing intelligence needs. They assume that since the risk of a single cataclysmic event, such as a nuclear attack by the Soviet Union, or a Soviet invasion of Western Europe, is less likely, that that means intelligence is easier. They also sometimes assume that the intelligence collection systems that were highly used until during the cold war are not useful—many of them are not useful in the post-cold war era.

Both of those assumptions are flat wrong. The intelligence problem presented by the types of issues we were facing today is in many ways considerably more complex and difficult to deal with than was the problem of tracking the works of Moscow when it was the capital of the Soviet Union throughout the world.

The Soviet Union did a lot of things in a relatively regular way. It deployed new ICBM's the same way, tested new systems the same way, even infiltrated groups in the Third World the same way.

There is not anywhere near that degree of predictability with respect to countries such as North Korea, Iran, Iraq, Libya, and so on today.

Many of the—I would say virtually all of the types of intelligence collection systems and people who were involved in working the cold war are readily adaptable to working what are in many ways considerably more complex and difficult problems. We are in the midst of restructuring and reorienting that; fully support the budget the President sent up to do that, and am very regretful at any reductions to it. I am especially regretful, and I think the country should be regretful, of any substantial reductions to it.

IRANIAN ARMS SHIPMENTS TO HEZBOLLAH ARE TRANSITING DAMASCUS

Mr. LANTOS. Mr. Woolsey, we will want to focus on the nuclear proliferation issue; but in view of the flare-up of hostilities in the Middle East, I think some of us would like to raise some issues concerning Syria and its role in this endeavor.

It is my understanding, 2 weeks ago, on July 15, Syrian armed guards stood by at Damascus International Airport as an Iran Air 747 unloaded antitank rockets and a range of other weapons which were promptly trucked off to Lebanon under military escort for use by Hezbollah to intensify its attacks on the settlements in the north of Israel.

Hezbollah is what is generally referred to as the party of God, although I am unaware of any written permission by the Almighty for the use of that term.

I wonder if you can tell us—because in this arena, hostilities have a way of escalating—how many arms shipments have gone through Damascus for Hezbollah this year over the past 12 months? Is there any evidence that Syria is moderating its position toward the terrorist gang called Hezbollah? And what is the relationship between Syria and Iran in connection with the support of state-sponsored terrorism?

Mr. WOOLSEY. Mr. Chairman, Hezbollah definitely has a home in the Bekaa Valley and its activities as the world's principal international terrorist organization are a matter of deep concern. It has shown its worldwide reach in a number of circumstances, including the attack on the Israeli Embassy in Argentina a year or so ago.

I can say a word or two about the situation with respect to weapons of mass destruction in Syria; but I am afraid that the subjects that you raised in this most pertinent question are ones we would have to talk about in executive session.

Mr. LANTOS. That is fine.

There clearly is a consensus that Iran is seeking to acquire nuclear weapons and my first question in this connection is which

countries are providing critical assistance for Iran's nuclear weapons development program; and what are they supplying?

Mr. WOOLSEY. Iran's nuclear program is at an early stage; but there are signs that it is going to pursue both nuclear weapons and atomic energy for power purposes. China has established itself as Iran's principal supplier of nuclear technology. Iran purchased a electromagnetic isotope separation unit—an EMIS unit it is called—from China. This was one of the uranium enrichment technologies pursued by Iraq earlier.

China has also sold Iran a zero power research—or a zero power research reactor that could be used as a training model for a plutonium producing reactor; and Iran is negotiating with Russia and China for nuclear power plants. Moscow and Beijing claim that these power reactors would be placed under international safeguards. That remains to be seen. We would hope that that would be the case.

ARE WESTERN COMPANIES HELPING IRAN?

Mr. LANTOS. One of the most disturbing aspects of nuclear proliferation and weapons of mass destruction proliferation that we discovered in the years leading up to the Persian Gulf War was the sickening complicity of hundreds of Western companies with governmental acquiescence or connivance in building up Iraq's capabilities in the field of weapons of mass destruction.

Some of us think, Director Woolsey, that there is a repetition of this now with respect to Iran.

Could you tell us the degree of cooperation you are receiving from Western European countries, Japan and other developed areas, in attempting to prevent "Rogue Regimes" such as Iran from developing their capabilities?

Mr. WOOLSEY. Let me mention, first, a word about Germany because there is something positive to be said here, Mr. Chairman.

Germany's strengthened export controls have helped curb the flow now of some sensitive weapons-related technologies. There are some German firms that almost certainly will continue looking for loopholes and pressing to roll back export constraints; but the German Government's new regime is beginning to have an impact. The very vigorous German press followed stories about illicit exports much more extensively than it did at one time.

I would say that numerous reports that suggest that there has been stricter licensing and enforcement in Germany are hurting some weapons acquisition efforts by other developing countries.

Let me ask Gordon Oehler to add to that with respect to other aspects of your question.

Mr. OEHLER. I think all of the developed countries, Western Europe and Japan certainly included, are doing what they can to prevent Iran from developing weapons of mass destruction capabilities.

Mr. LANTOS. Do you really mean that? When we have just seen—having just seen in the *New York Times* last Sunday the nightmarish record of what these countries did to help Iraq develop its mass weapons capabilities? Are they now doing everything they can?

Mr. OEHLER. Well, a lot of lessons were learned from the Iraq case. In all of these countries—Germany was just mentioned, Japan, have put in fairly strict export control laws on those weapons and technologies that are directly related to weapons of mass destruction.

Mr. LANTOS. Are those enforced? Are those laws enforced?

Mr. OEHLER. The enforcement capabilities are not necessarily up to the laws.

Mr. LANTOS. Isn't that the issue?

Mr. OEHLER. That is one of the issues.

Mr. LANTOS. The greatest constitution was the Soviet constitution. It just was not observed. They can put on the laws any set of conditions and requirements and restrictions. If the enforcement capabilities or the willingness to enforce is not present, those are useless.

Mr. OEHLER. Yes. And they are improving their enforcement capabilities, but they still have a ways to go. All Western countries do.

I would also like to add that there is a problem in the area of dual use technologies. Many of these countries do not see the same—do not have the same philosophy as the United States does on the transfer of dual use technologies. So you see Western European and Japanese companies much more in Iran now developing telecommunications infrastructure, basic industries, and so forth. In the view of the United States, that has not been desirable because of the fact they may be used for weapons purposes.

THE CLEAR DANGER OF DUAL-USE EXPORTS

Mr. LANTOS. Since neither of the Western European countries nor Japan have been accused of naivete, how do you explain the fact that we clearly understand the fact that dual use technology is just as dangerous as nondual use technology, while our friends in Europe and Japan use the dual use loophole to export for profit purposes items which can be of enormous global danger?

Mr. OEHLER. Yes. That is of great concern, the trade in these dual use items. That is where the weak point is.

Mr. LANTOS. Well, your last sentence is sort of totally at variance with your very positive earlier statement. Dual use has been the loophole that countries and companies which wanted to pretend that they would like to prevent the export of weapons of mass destruction to these "Rogue Regimes" have used historically.

What you are saying is they are still using it?

Mr. OEHLER. No. My first statement, if you look at it complete, says that they are doing what they can to prevent direct weapons related technologies flowing to Iran. And that is true. They are not allowing the sale of reactors, for example. It was mentioned earlier that China has signed a contract or is negotiating with Iran for the development of power reactors. Russia is, too.

Iran would much rather go to Western suppliers. Western suppliers including Germany, for example, have refused to complete the Iranian nuclear program that was started back in the time of the Shah.

So I think what I am trying to say is that those technologies which are directly related to weapons of mass destruction pro-

grams, such things as precursor chemicals, in the chemical area; fermenters and things in biological warfare; the nuclear areas I talked about, these countries have really done a pretty good job of stopping that.

Then there is the area of the dual use technologies. That is the area of contention.

Mr. LANTOS. Well, I agree with what you are saying; but that leaves us with an enormous problem.

Mr. OEHLER. I agree.

BOEING SALE TO IRAN

Mr. LANTOS. Let me just take a very simple item. Let me deal with the issue of the pending sale of Boeing aircraft to Iran.

I take it that we use—we would use such aircraft as dual use, isn't that true?

Mr. OEHLER. That is correct.

Mr. LANTOS. And the argument, and the argument as to why we should sell Boeings to Iran is that if we don't, Airbus will be sold to Iran; is that correct?

Mr. OEHLER. You will have to check with the policy folks on that.

Mr. LANTOS. Well, Director Woolsey, isn't that——

Mr. WOOLSEY. It is certainly an argument, Mr. Chairman. I think Dr. Oehler's note of caution is appropriate. This policy issue is one that will be decided—as they say in the Navy—above our pay grade.

Mr. LANTOS. It may be above your pay grade, but it is not above our concern.

Mr. WOOLSEY. That is correct.

Mr. LANTOS. Let me deal with it a bit further.

Am I right in assuming that Airbus could also not be sold because it has more than a 20 percent U.S. component if we objected and the Europeans accepted that objection? Isn't that true? In a technical sense, isn't that true?

Mr. OEHLER. I believe there is some stipulation like that. I can say Airbus is working very hard to get the percentage of U.S. components below that limit, whether it is 20 percent or what. So they will not be subjected to U.S. controls.

Mr. LANTOS. So the classical statement of Lenin that some capitalists sell the rope to hang themselves is as valid in 1993 as it was in the early 1920's? Is that basically what you are saying?

Mr. OEHLER. And probably will be true into the year 2000.

Mr. LANTOS. When the World Trade Center blows up, when Iran is in the process of acquiring nuclear weapons, when it is now clear in retrospect that Iran was much closer to having a nuclear weapons capability than our intelligence community estimated, what more effective measures does our Government need to take to persuade our allies and others to cooperate?

For instance, it came as a surprise to some that a Swiss firm—a Swiss business firm was recently accused of selling nuclear technology to Iran; nuclear technology that could be used to develop a nuclear weapon.

Mr. Director, is that newspaper report accurate from where you sit? Dr. Oehler?

Mr. OEHLER. I am not able to address that in this forum, unfortunately, for sources and methods.

Mr. WOOLSEY. We have to go into that in executive session, Mr. Chairman.

Mr. LANTOS. Let me deal a little bit with the question of the danger of Russian sales and the movement of highly skilled Russian and Soviet personnel to the "Rogue Regimes."

You mentioned, Director Woolsey, the activities involving Russia at the Abu Dhabi arms show. Can you expand on that?

What if anything are we doing to attempt to persuade the Russians that while this may bring them a few rubles, in the short run, it is not in their interest to see a world where "Rogue Regimes" have weapons of mass destruction and the capability of delivering them?

Mr. WOOLSEY. May I ask Dr. Oehler to speak to that, if I may.

Mr. OEHLER. The Russians showed quite a wide array of technology at that Abu Dhabi fair basically for sale. In the past, the Russians were most interested in selling only their overt technology outside their own closest nations. What that arms fair showed us was that they are interested and willing to sell some of their very highest technology and the modification to the scud was a very high technology development.

In terms of are we working to try to persuade the Russians not to do that, I think it is fair to say that the administration has ongoing, continuing—what word you want to use—discussions with the Russians on that. On the exact nature of those, their understanding of the success of them, I think you will have to ask the Department of State.

"CERS": THE SYRIAN SCIENTIFIC RESEARCH CENTER

Mr. LANTOS. One of the things we learned from Iraq is that these "Rogue Regimes" typically have a very comprehensive system of front organizations buying outfits under various names across Western Europe and elsewhere, and they use these to take care of their shopping and to do it in as sinister and invisible ways as possible. I want to ask you a question concerning the Syrian procurement front.

There is an organization called the Syrian Scientific Research Center which, of course, is a state-run entity reporting directly to Asad which has been used for many years as a front for the purchase of prohibited items in the United States, Germany, France, Belgium, the United Kingdom, all necessary for weapons of mass destruction programs undertaken by Syria.

It has become so notorious under this name, under its French acronym, CERS, that I understand both Germany and the United States have placed it on a watch list of unacceptable end users so that companies will not make the mistake inadvertently of selling it useful technology.

Despite this, we have learned that this procurement firm is functioning vigorously. Their teams have been visiting large European companies just in recent weeks without any attempt by European authorities to prevent this from happening.

I would like to know if we have a strategy of putting this outfit out of business and if we work actively with our European and Japanese and other friends to alert them to this danger, Dr. Oehler?

Mr. OEHLER. One of the unfortunate outcomes of the 1980's when Saddam built up his CW procurement network and nobody seemed to care at the time, was that he learned a lot of lessons on how to set up these diversion networks, how to get around local laws. Many of the suppliers in Western Europe and elsewhere also learned that lesson and resold that information to these other countries such as Syria that you are talking about.

One of the techniques that is used is to have a legitimate scientific outfit also get into the business of either fronting for the purchase of weapons which are then diverted; and that gets around—or at least it did earlier—get around what is called the end user part of the license. That is the license application has to state where that material is going. If it is going to a standard scientific company, normally not.

Mr. LANTOS. If you forgive the bad pun, you don't have to be a rocket scientist to understand that if in a country like Syria or Iran there is a government entity which engages purely in peaceful scientific research and next door to it there is an entity which is developing weapons of mass destruction, that it is not unthinkable that items bought for the pure outfit are transferred to the less pure outfit?

Mr. OEHLER. No. For sure.

I want to tell you that CERS, that organization, has been on our list for a long while. We watch it very closely.

Mr. LANTOS. Is it on the British list?

Mr. OEHLER. Yes, sir.

Mr. LANTOS. Is it on the French list?

Mr. OEHLER. I hope it is on the watch list. I cannot say specifically about the export control list. I can tell you for sure the world is very well-informed on CERS activities in a number of different areas.

Does that mean that everybody is going to stop the sale of technologies or chemicals or whatever to them? The answer is no. You still have that dual use problem where many companies, some countries believe that if there is reason to believe that that is going to go into a scientific one and it is dual use, then, therefore, they are given the economic situation, the suppliers are under—they are inclined to let it go.

I think many of these countries—in answer to your question about what we are doing about this, we have advertised around the world that CERS is an outfit to watch. We have also done a lot of work in trying to understand the diversion networks better and trying to get information out faster to these governments so we, as an international community, might be able to respond faster.

You cannot do much about CERS; but you ought to be able to do something about the companies that are dealing with them from the outside. Often times these are front companies that are set up. As you know, if any country sets up a company in the United States, that is treated as a U.S. citizen and has certain rights and privileges.

The same is true in Britain, France, everywhere else. So in order to be able to get inside that time loop where they can set up these front companies, create some diversion, get out of business, we have to have better intelligence and be able to work this within this community faster. That is what we are trying to do.

Mr. LANTOS. Let me just say, in my judgment, your organization does a better job of this than any other branch of our Government. I hope that the President will use his next summit meeting to persuade the heads of the other participants that there is no more important job that they and we have than to prevent the proliferation of weapons of mass destruction and they shouldn't close their eyes to outrageous activities by private firms and sometimes government agencies in our allies and other friendly nations.

Congressman Bereuter.

Mr. BEREUTER. Thank you, Mr. Chairman.

Yesterday, President Clinton sent a letter to Congressman Dan Glickman, chairman of the House Select Intelligence Committee, and it has been generally made available to members for their use. I will quote, first, in preparation for my question.

"The reductions already proposed by the House Intelligence Committee will in themselves test our ability to manage prudently the reduction of the Intelligence budget while we simultaneously seek to meet the new security challenges which confront our country. Therefore, I will oppose any amendment on the House floor which seeks to reduce intelligence spending beyond the reductions imposed by the committee.

"While I appreciate the delicate balance you and your colleagues have attempted to strike, I am opposed to further erosion of intelligence capabilities needed to protect our Nation's security."

That is the letter of President Clinton from yesterday. Going back to Chairman Lantos' first question which related to the budgetary and other difficulties your agency faces and the Intelligence Community generally, especially as they relate to proliferation, I want to ask you for a little more detail on not only proliferation, but terrorism difficulties, state-sponsored and otherwise. What kind of difficulties and considerations do they pose for you in a budgetary, personnel, and programmatic sense.

Before, you gave us some of the false assumptions and attempted to knock down those. Is there more detail you care to provide us and enlarge it also in the area of terrorism if you would, Mr. Director?

Mr. WOOLSEY. Congressman, the systems and people that were engaged in the effort to watch the Soviet Union and learn and analyze intelligence from it, and other such targets during the cold war era are generally quite adaptable to such jobs as searching the Mideast for new underground construction. They are adaptable to the job of understanding what we can understand from human intelligence and signals intelligence.

I would say that the very important jobs of locating and understanding the products that are being shipped in connection with proliferation, the networks and people and companies who are involved in those shipments, and the end use in the sense of facilities and weapons in proliferating countries are similar—require similar but in many ways somewhat more demanding uses of human intel-

ligence, imagery, and signals intelligence than was required during the cold war.

What we are trying to do in the Intelligence Community is simultaneously to reorient our intelligence collection and analysis toward some of these issues; and at the same time, phase down in size in a systematic and planned way much of the reductions that need to be taken and can understandably be taken in the Intelligence Community.

I think fewer people having fewer facilities, having frankly fewer satellites, have to be planned and managed in a way such that you pay some investment at the front end in order to save more resources and have your resources reoriented 3, 4, 5, 6 years down the road.

If I could use an analogy, one that is not a happy one, I am sure, on Capitol Hill, but it is similar somewhat to the base closure problem. Virtually no military facility anywhere in the world, overseas or in the United States, that is closed down saves money in the first year, or second, or third. It usually costs money in the first year, two, three. You do it because you are changing the nature of your infrastructure and you start seeing savings out a few years in the future.

The President's budget that he submitted to the Congress for intelligence was entirely consistent with his promise during the campaign that there could be approximately $7 billion in reduction over a 5-year period, from 1993 to 1997, in national and tactical intelligence spending compared with the program that existed last summer.

But that reorientation, that savings over a 5-year period did involve a small increase in percentage terms from the appropriated level that Congress approved last year.

Our effort with whatever share of that budget Congress ends up approving will be to use those funds and to use our planning—conduct a planning in such a way that we do end up saving substantial resources for the country over the period of the next 5 to 10 years; but any effort to say that it has to happen suddenly and immediately not only will mean that it is not done efficiently, it will not only mean that it thwarts efforts to save money over the long run, but it also could make it substantially harder for us to understand this proliferation issue, to understand the terrorism issue, and to deal with these new and sometimes even potentially linked problems of terrorism and weapons of mass destruction that I described.

I have no ambitions to preside over a larger or more grander Intelligence Community in the U.S. Government than the taxpayers absolutely need.

My total interest in that is seeing that the job gets done in a sensible and reasonable fashion and that we do not miss some of these very troubling trends for lack of resources, and because the President's budget has been cut more for intelligence than is reasonable given all the other things the country needs to do.

Mr. BEREUTER. Thank you, Mr. Director. I know it is hard to give explicit examples because of the classification difficulties. I think that that response will be helpful for public education and for the

education of members that do not deal with these issues all the time.

I know my colleagues have questions. I would like to ask one more, Mr. Chairman, if I may. It is a different subject.

I would like to ask the Director about the opportunities, the progress, the motivation you would see now or prospectively between the United States and Russia and perhaps other of the former Soviet Republics in dealing with proliferation of weapons of mass destruction and terrorism.

Unfortunately, you were required to give us the bad news about the sale of missiles. But beyond that, in looking at the weapons of mass destruction, terrorism, what opportunities, what progress do you think we might expect, since we would seem to have some of the common concerns about terrorism and proliferation?

Mr. WOOLSEY. These two areas plus narcotics, Congressman Bereuter, are the areas that we are working with the Russian intelligence service and other intelligence services in the former Soviet Union on cooperatively.

These intelligence relationships are just beginning. They are collegial, but careful; but they do hold out the promise—I would say a promise that is directly proportional to the experience that Russia and the other former states of the Soviet Union have in moving toward being democratic states—for us to combine forces in a way that can help make an important dent in this problem.

The senior levels of the Russian Government, President Yeltsin in particular, take this matter very seriously. We are beginning to work with Russian intelligence and with the senior leadership of the Russian Government on these matters. It is for me personally, I might say, a gratifying experience to be able to sit and work with—with some of our former adversaries, really in a very cooperative way on these issues.

I would hasten to say that it is a beginning. For some of these countries, including some of the former Republics, there are problems down the line, as I alluded to in my opening statement in some of their facilities, some parts of their government bureaucracies in which their attitudes toward proliferation of sometimes dual use technologies, sometimes potentially materiel of different types is not as positive as that of the—let's say—President Yeltsin and the reformers surrounding him.

So this is a somewhat delicate undertaking, but it is one that we have begun. It is one that has begun in some small measure to pay some dividends.

Mr. BEREUTER. Thank you.

Thank you, Mr. Chairman.

Mr. LANTOS. Thank you.

Congressman Berman.

Mr. BERMAN. Thank you very much, Mr. Chairman.

Good to see the director here. I have a number of questions and you have raised a bunch of issues I am very interested in. I don't know if in every case you feel you are—I am asking perhaps more in your role in helping to formulate policy as a member of the NSC than as a representative of the agency, hoping that that preface will allow you to answer questions you otherwise feel it might not be appropriate for you to answer.

NORTH KOREAN WITHDRAWAL FROM NPT

In your testimony, you talked about your pleasure—I forget the exact verb you used—but that the North Koreans had suspended their withdrawal from the NPT. Maybe pleasure is a little bit of an overstatement. You noted it positively. In reality, what does that mean? Iraq never even gave us an intention to withdraw from the NPT, but did nothing in terms of what Iraq did, what they were trying to produce in the development of a nuclear weapons program.

Why is there any reason to believe that the North Korean action is anything other than an effort to placate some of the opposition, lessen some of the pressures for the reason they are doing what they are doing?

Mr. WOOLSEY. We do not know that it is yet, Congressman Berman. We only know that there may be an opportunity. I tried to stress throughout the testimony with respect to North Korea the importance of deeds, not words. I think all one can say at this point is the discussions are going on and that North Korea's expressed interest in moving to light-water reactors and to different types of power sources than those that readily produce fissionable material, highly enriched uranium, plutonium, is at least something that has been viewed positively by the U.S. Government with the appropriate cautious words in its description.

I am being very careful in what I say about this because the talks are going on; and although—as I know you appreciate, I am, along with the Chairman of the Joint Chiefs, a statutory adviser to the National Security Council. I am not one of the policymaking officials who sits on the council. That is really the President, Vice President, Secretary of State, and Secretary of Defense. So my role is here and there essentially one of trying to understand what is going on in the world and advising about what that is as distinct from making policy recommendations.

I don't think one can say anything more than we may, as a result of these recent discussions with the North Koreans, have an opportunity to see things turn in a more positive direction; but it is the—it is actions not words about them that will matter.

CHINA'S COMMITMENT TO MTCR

Mr. BERMAN. You indicated in your testimony that there were questions about whether or not China was living up to its commitment to adhere to the missile technology control regime, the representations they made, I think, several years ago, which were reported to us by top officials of the previous administration.

Is there any doubt that they are not adhering to their commitments they made at that time with respect to proliferation of missile technology and missile components that are contained—that are constricted by the missile technology control regime?

Mr. WOOLSEY. I think the only thing I can reasonably say in open session on this, Congressman Berman—I would be glad to go into more detail in executive session—is that we are indeed concerned with reporting that China transferred M–11 missile technology to Pakistan.

This is right now the central issue. We do continue to monitor closely Chinese behavior on this very important subject; but as you can imagine, given the importance of this, I thought ahead of time rather carefully about exactly what words I would use in open session to describe our current posture. I would appreciate any opportunity you want to take for us to examine that either you and me together or in executive session. I am quite ready to do that.

Mr. BERMAN. I appreciate that.

FUNDING FOR IAEA

The IAEA had a number of new duties now. They are heavily involved in Iraq. They have responsibilities in Argentina, Brazil, which they didn't have in the past. There is a lot more work. Why isn't the administration requesting a higher level of funding than a freeze for this agency given its massively expanded level of duties, and apparently its higher level of focus on what it was supposed to have been doing all these years?

Mr. WOOLSEY. Let me ask Dr. Oehler to say a word about the funding structure for the IAEA. Being a United Nations entity to which we contribute along with other countries, I am temporarily at a slight loss to understand precisely how our Government's attitude toward funding is affected.

Could you spell that out a little bit?

Mr. BERMAN. I was disappointed the administration didn't request more money in this year's budget for IAEA. They appealed for it. They have many more responsibilities. We want other countries to increase their contributions. We are not talking about large amounts of dollars here.

Mr. WOOLSEY. You are, of course, way out of my area of responsibility as Director of Central Intelligence, Congressman Berman.

Mr. Oehler, do you have a comment?

Mr. OEHLER. I would like to say the IAEA has stepped up its operations.

Mr. BERMAN. Are they doing good work?

Mr. OEHLER. Yes, they are. They are doing good work. They are not the end to all of our problems, of course; but they are a very important part to the solution.

Mr. BERMAN. Do they play an important role in our nonproliferation strategy?

Mr. OEHLER. Yes, they do.

Mr. WOOLSEY. I would add our level of intelligence support to them, which is really how we come into that picture, has substantially increased in recent years; the relationship is a positive one. Through the Department of State, they have been able to absorb and use products of intelligence, I think, in a responsible fashion.

They have, of course, in the aftermath of the Gulf War, expanded their efforts to engage in inspection beyond those declared sites; but in terms of policy decisions about levels of funding, you need another official up here.

Mr. BERMAN. Mr. Chairman, would it be all right if I pursued two more areas?

Mr. LANTOS. Well, I will give you one more area. There are several colleagues waiting. The Director has to leave in a few minutes.

Mr. BERMAN. All right.

MISSILE TECHNOLOGY CONTROL REGIME

I will not pursue the role of advanced conventional weapon transfers, the extent to which that undercuts our ability to work on nonproliferation of weapons of mass destruction. I will pursue, instead, a more limited question about MTCR.

You mentioned Argentina as being invited to be a member of MTCR.

Mr. OEHLER. Yes, sir.

Mr. BERMAN. Other countries are asked to add here to that?

Mr. LANTOS. MTCR is the Missile Technology Control Regime; right?

Mr. OEHLER. That is correct.

Mr. BERMAN. Are there some different classes of membership in MTCR? What is the defining characteristic that says you are eligible for one but not for the other?

Mr. OEHLER. No there are no differences in classes of members. I would add a footnote to that in a minute. They are being invited to join the missile technology control regime. There are a couple of hurdles they will be asked to cross before they join, but that is expected to be sometime soon.

The footnote is that China has agreed to adhere to the guidelines and parameters of the MTCR, but they are not and are not expected to become members of the MTCR.

Mr. BERMAN. They are not being invited to become members?

Mr. OEHLER. I don't know whether they have be asked. But I don't think they would, if asked. I think their decision is to abide by the guidelines and parameters.

Mr. BERMAN. What is it that we expect of countries that would be allowed to become members of the MTCR?

Mr. OEHLER. Basically, we expect countries that do not have ballistic missiles not to develop ballistic missiles.

Mr. BERMAN. What about countries that have an indigenous ballistic missile manufacturing capability?

Mr. OEHLER. I believe they are not to bring in outside technology for that. I am not so sure about those programs.

Mr. BERMAN. Even though the British and the French and us, we exchange information and technologies in this area.

Mr. OEHLER. I haven't really looked at the British and the French and U.S. relationship and how that relates to it. Most of my efforts have been focused on preventing other countries from getting ballistic missile programs.

Mr. LANTOS. Congressman Smith.

WEAPONS STOCKPILING IN LATIN AMERICA

Mr. SMITH of New Jersey. Mr. Director, the May 23 explosion in Santa Rosa, in Nicaragua, was but another wake-up call that the Sandinistas continue to exert an enormous influence over both policy and ongoing events in Nicaragua. As we know, notwithstanding the election of Violetta Chamorro, the Sandinistas continue to own the army and intelligence functions of that country; and when the vault exploded, it revealed and exposed a substantial cache of weapons, including surface-to-air missiles, passports and falsified

government documents, extensive hit-lists, evidence of direct links to a myriad of terrorist organizations from the PLO to the ETA.

And there were some—there is a circumstantial link, at least, to the World Trade Center with the discovery of five Nicaraguan passports. One diplomat described this cache as a one-stop shop terrorist operation where you get all the documents and weapons you could dream of. That juxtaposed with such events as Daniel Ortega's flights and frequent trips to countries like Libya, like Iraq—he went to Libya twice, I understand, over the last year.

A moment ago you testified on the importance of getting the job done, you don't want to miss very troubling trends for lack of resources. Do we have any sense that a dangerous stockpiling on behalf of the MFLN was occurring? Were we or should we have been aware of existence of this cache and perhaps of others; and is this the tip of iceberg, and are there sufficient numbers of CIA assets focused on this part of the world?

Mr. WOOLSEY. I would say, first of all, this is an important issue, but somewhat afield from weapons of mass destruction. And one of the things——

Mr. SMITH of New Jersey. You did testify about the concern, although there is no evidence that terrorist groups have acquired such weapons, certainly the possibility exists; and when the head of a political party, Daniel Ortega, is making these kinds of trips to countries that are in that network, there certainly is a link.

Mr. WOOLSEY. I would say we have no evidence at this point that terrorist groups are in fact yet acquiring weapons of mass destruction. I would say that of the terrorist groups that I would be most concerned about, in that—to put on a sort of—a watching brief on for those purposes, it would tend to be those that are affiliated with or housed in regimes that themselves are involved with weapons of mass destruction. Much of that is in the Mideast rather than in Latin America.

But the subject of terrorism in Latin America, including the kidnappings that have been right at the heart of much of Latin American terrorism in recent years—and that, as you perhaps noted, was involved in some of the material in the Nicaraguan bunker—are very important issues. But in order to address those carefully, I really need to have one or two people who watch such matters as Latin American terrorism, perhaps from our counterterrorist center, with me, and would be glad to meet with you and go over it.

What I am really able to discuss effectively, I think especially in a public session this morning, is essentially the chemical, bacteriological, nuclear weapons, ballistic missiles and their interaction with countries where they are being proliferated. So I think probably this morning I don't have much more to add on that particular point.

Mr. SMITH of New Jersey. I would like to meet further and—if you could answer those questions for the record.

Mr. WOOLSEY. For the public record, there may not be a great deal more that we could say; but for executive session with this committee or in some kind of classified session, we will be glad to arrange with the chairman to see to it that the question gets answered.

CHINA'S NUCLEAR COOPERATION AGREEMENT WITH IRAN

Mr. SMITH of New Jersey. One final question. The Iranian parliament recently ratified, as you know, a nuclear cooperation agreement with China which seems to be geared toward—or they say—to civilian nuclear research. Could you elaborate on the issue of China's nuclear cooperation with Iran, your evaluation of how Chinese technology might aid Iran's nuclear weapons program?

Mr. WOOLSEY. I think I can say a word on that and then I will turn it over to Mr. Oehler or Mr. Gershwin to follow up.

I mentioned earlier the electromagnetic isotope separation unit and the sale by China to Iran and the fact that this was one of the technologies that Iraq had pursued back before the Gulf War.

There was also in September of last year, signed between the two countries, between China and Iran, an agreement to cooperate in developing peaceful applications for nuclear energy. They are apparently also negotiating the purchase of these two Chinese 300-megawatt nuclear power reactors. The Chinese at this point state that those would in Iran be placed under international safeguards.

What worries us principally here is Iran's very dubious commitment to the nonproliferation treaty and the fact that, quite apart from any material in these reactors, which are, if safeguarded, perhaps not the most important point; it is the overall training and level of expertise and improvement in skills with respect to dealing with fissionable materials and reactors that would be supplied to Iran that could of course be transferred in some sense to a nuclear weapons program.

Beyond that, let me see if either Gordon Oehler or—you are probably the one on this.

Mr. OEHLER. As was stated in the testimony, Iran's nuclear program is still fairly early. In any country's early stage of development, one must develop a basic nuclear infrastructure. That infrastructure can be used both for peaceful and for weapons purposes. Iran—China has been the supplier of much of that technology and material to build Iran's basic nuclear infrastructure.

Iran and China both say that that is to be used only in a civilian nuclear power program or for peaceful purposes.

Mr. LANTOS. Has any nation ever said that these programs are used to develop nuclear weapons?

Mr. OEHLER. No. That is what makes the whole question of dual use possible.

We have good information that Iran has nuclear weapons intentions, so we therefore expect that much of this material or the expertise that is transferred as part of these programs will find its way into a weapons program.

Mr. SMITH of New Jersey. When you say it is in the "early stage," how long until it comes to fruition?

Mr. OEHLER. We estimate another 8 to 10 years, given roughly the level of progress they have made to date.

Mr. SMITH of New Jersey. Even with a heavy dosage of Chinese physicists being in the country, providing technical data and help?

Mr. OEHLER. They have been there basically for the basic nuclear infrastructure, as I have stated. There is no evidence to date that they have been involved in the direct weapons-related part. It is a

small effort so far to determine, for example, whether to go the enriched uranium route or the plutonium route. When the part that is directly weapons-related gets going further, how much is the Chinese involvement—we have no evidence of that, but most of us would be surprised if they would be directly involved in the weapons part.

Mr. GERSHWIN. I wanted to add to that that if all foreign assistance to the Iranian nuclear program were eliminated, which means no cooperation with nuclear reactors and whatever, it would undoubtedly prolong significantly the amount of time it would take for Iran to develop nuclear weapons. Even though the support that is taking place is not directly related to the nuclear weapons program, it builds up the infrastructure and gives them a lot of boost and capability to take these people and capabilities and spread them into the nuclear weapons program. Without that assistance, it is much more difficult for them.

Mr. SMITH of New Jersey. Besides China, who else is involved?

Mr. GERSHWIN. They are the key ones. We are going to watch North Korea, Pakistan—although I don't think there is a lot of concern there at the moment—Russia. Things are available.

Mr. SMITH of New Jersey. Thank you.

Mr. LANTOS. Congressman Faleomavaega.

Mr. FALEOMAVAEGA. Thank you, Mr. Chairman.

Mr. Woolsey, in the aftermath of the Tiananmen Square fiasco—and we had our Ambassador here at a hearing in the committee, in terms of trying to find out if our Embassy officials were aware that there was going to be a real problem here dealing with a demonstration that took place in Beijing, at this time. I recall there were reports that the intelligence community had believed—and President Bush—to the effect that Deng Xiaoping was totally incapacitated, and CNN showed Deng Xiaoping shaking hands with everybody.

EFFECTIVENESS OF THE INTELLIGENCE COMMUNITY

I wanted to ask you, on a scale of 1 to 10, in your opinion do you think that our intelligence community is really up to par, knowing what we should be doing? Given whatever the guidelines and the rules of law that they are to abide by, do you believe that we are now really doing an excellent job, in your best judgment, as far as an intelligence agency?

Mr. WOOLSEY. Congressman, I have been around intelligence issues for the last quarter century in Washington. I started out 25 years ago in the Pentagon as a lieutenant, analyzing remotely piloted vehicles and satellites for an organization that—whose name was only made public last October, the National Reconnaissance Office. I have been a consumer of intelligence in several government jobs in the Navy Department and as a negotiator. I managed Naval Intelligence for 3 years when I was Under Secretary of the Navy. So I have, I suppose, some background and experience in looking at the intelligence community from the outside, up until 6 months ago when I took over this job.

One of the things that I asked to be done, I have charged the new chairman of the National Intelligence Council, Joe Nye, brought down from Harvard, to set up some systems to have a real-

ly very thorough look at the history of intelligence estimates and which ones the community had been right on, which ones wrong, if wrong why; and we are sort of in the middle of going through that right now.

I can give you an impression as someone who was an outsider until the beginning of February, and has then been in this job since then. My impression is that during the cold war our analysis of and understanding of the military hardware and military developments of the Soviet Union were really first-rate. And as a negotiator, I saw this both in strategic weapons and in conventional weapons. What was produced by the intelligence community was useful to me not only in a long-range planning sense but also immediate feedback for what I should say and how I should say it in my lunch tomorrow with the Soviet Ambassador. So as an individual I am a—have been a very satisfied consumer of intelligence.

I would say that, looking back over the events toward the end of the cold war—and for part of this time, beginning in November of 1989, I was inside the government—the intelligence community's assessments of what was happening in Eastern Europe and the Soviet Union politically were, I think, during that period and the periods just before, on the whole considerably better than what was being said in the outside world.

One thing that I think was not altogether well understood was the fragility of the Soviet economy and the relative underlying weakness of the Soviet economy. I think that the politics of what was happening with the dissident groups and what was happening in Eastern Europe was reasonably well perceived.

During, also, that same period estimates with respect to what was going to happen in the former Yugoslavia, when Yugoslavia broke up, were much more accurate and way ahead of what was being said, for example, by knowledgeable, informed people in public, in the media, and the like.

Assessment with respect to, politically, what has now taken place in Japan over the course of the last few months has been first-rate.

Mr. FALEOMAVAEGA. On a scale of 1 to 10, 1 being the best and 10 the worst, give me your best shot.

Mr. WOOLSEY. Impressionistically, you are a champ in the major leagues when you strike out twice and get a hit one-third of the time when you are at the plate; I think the intelligence community on the whole is twice that good.

Mr. FALEOMAVAEGA. That is obvious in some circles, because I understand the intelligence community has given the proper information to our policymakers, but our policymakers decided not to accept it.

Mr. WOOLSEY. That has happened. My experience personally over the course of the last several months is that senior levels of this administration and also in the Congress have been extremely receptive——

Mr. FALEOMAVAEGA. Would you say that China played a critical role in getting North Korea to get them on the table to negotiate their recent action by getting them out of the NPT?

Mr. WOOLSEY. I wouldn't say critical, but I would say helpful.

Mr. FALEOMAVAEGA. I know, Mr. Chairman there are other members. Thank you very much.

Mr. LANTOS. Congressman McCloskey.

THE BALKANS

Mr. MCCLOSKEY. Thank you, Mr. Chairman. I commend Congressman Faleomavaega for his statement there, and it anticipates one thing I do want to say, Mr. Woolsey, in that really the analysis of your Balkan intelligence team that I have received over the last 2 years has been tremendous, outstanding, A-plus, beyond perfection——

Mr. LANTOS. Would you say something kind about it?

Mr. MCCLOSKEY [continuing]. But the problem is that Mr. Berman anticipates that also. It has not impacted policy so far in either administration and whatever your function is with the National Security Council and with a Bosnia meeting going on today. And as I learned this morning, the French foreign minister coming in today, I would beg, implore and entreat you to lay out on the table to everyone concerned the work of your team.

Obviously, we all know what has happened and what the failures have been. Tell that group the analysis of your team as to consequences in the Balkans, given various actions or lack of them; I think that would do the job.

Mr. WOOLSEY. Thank you for the kind words. We have been intimately involved all the way up and down the line in assessments during consideration of the Balkans of these very difficult problems; and this is, as the Secretary of State has said, just about the hardest foreign policy problem I have ever seen. But we have called them the way we see them and will continue to do so.

Mr. MCCLOSKEY. Two fairly forthright questions, one as to the Balkans and one as to nuclear and other nonproliferation problems coming out of Russia.

Could you comment on terrorism, nuclear, chemical or biological weapons threat that might be posed by Milosevic? Has there been a team working on that?

Mr. WOOLSEY. We look at potential terrorist developments coming out of that part of the world very carefully, and there is nothing at this point that would involve any weapons of mass destruction.

Mr. MCCLOSKEY. I could go further, but in the interests of time, I will not.

SCIENTIFIC EMIGRATION OUT OF CIS

In your statement, turning to the Soviet Union, you say you continue to receive reports of a brain drain from the former Soviet Union. Delays in pay, deteriorating working conditions, and uncertain futures are apparently spurring Russian specialists to seek emigration despite official restrictions on such travel. We treat each of these reports seriously and attempt to determine the veracity of each.

In a previous appearance I and other members asked you to ascertain instances of success or completion in such proliferation efforts. Staff informs us today of something I wasn't aware of.

I guess some time back there were 64 Russian nuclear and missile technicians apprehended on a plane leaving Moscow for North Korea. I guess some reading of fiction I am doing recently, particu-

larly The Night Manager, would seem to imply there is an organized trade for example with personnel and placement agencies working in such areas.

Given all the interest and given, I think, the horrible economic and incentive repercussions of the Russian economic policy of the last 2 days, which says you have no economic future or stability here if you worked and tried to care for your family, what can you say about—where has the problem gone to now?

Surely there have been successful efforts at breakout on this. Can you tell us anything on that?

Mr. WOOLSEY. We have been watching this issue very closely, Congressman, and at this point it appears that most—not all, but most scientific emigration out of the Russia and the other CIS states has involved experts in basic scientific disciplines—math, physics, computer science—who are looking for jobs where they can be paid more than they are paid at home in industry and education. Much of that emigration has been to the West.

Experts of that type are not really likely, although it is possible that they have had direct experience and expertise with weapons of mass destruction. Frequently this is not the case and even very distinguished Russian scientists—who are very good, by the way, in the basic sciences—have not really been involved with weapons programs. And when one hears some of the high percentages, such as—I think there was a Moscow media television report last winter that said more than 9 percent of Russia's scientists have left the country; we don't know that that number is true, but insofar as something close to it would be accurate, a substantial share of those, I think, would be these basic scientists we are talking about.

As far as weapons-related scientists are concerned, the country that is probably most aggressively recruiting CIS scientists to help with a wide number of weapons programs is China, so there is a substantial movement along those lines. And other countries that have been trying to hire Russian and other CIS scientists, such as Iraq, North Korea, India and Pakistan, some of these reports we believe may be unfounded rumors or allegations that are intended to discredit the recruiting, the alleged recruiting countries.

But, nonetheless, there has been some movement of Russian weapons-related scientists. It is something that we think is a serious matter, that we need to maintain a very careful watch on; and I think perhaps I can ask Dr. Oehler——

Mr. MCCLOSKEY. Where can you ascertain that they have landed as far as reasonable knowledge, rather than just reports?

Mr. OEHLER. Reasonable knowledge, where have——

Mr. MCCLOSKEY. Russian or Soviet area scientists been landing, the ones that have gone—beyond reports.

Mr. WOOLSEY. More heavily China than other countries.

Mr. MCCLOSKEY. North Korea, Iraq?

Mr. OEHLER. Not so much those two, but there is evidence the North Koreans would like to have them, but the Russians are unwilling to go.

They have expanded in recent years their nuclear cooperation with Libya. In late 1980's, that dipped due to problems between the Libyan and Russian Governments. That has been expanded some;

these are under IAEA auspices. And Iran is a big worry, too, with the nuclear cooperation agreement.

Mr. LANTOS. Would the gentleman yield?

As you know, one citizen by the name of George Soros gave $100 million to the Russian Government to encourage scientists to remain in Russia. Have there been any other attempts by foundations, individuals, governments, to undertake a coordinated effort? It seems to me that this is an enormously important and creative avenue, and I have not seen much else except this lone and bold undertaking.

Mr. WOOLSEY. Mr. Chairman, some of the Nunn-Lugar funding is relevant here, but I think we probably need to get you an answer from someone in the government who watches what the United States does.

Mr. LANTOS. Congressman Ackerman.

Mr. ACKERMAN. Thank you very much, Mr. Chairman.

Thank you, Mr. Director, for being with us today. Mr. Director, in your statement early on you spoke of nuclear threat from North Korea, and as a preamble to that almost, you describe the possibilities of the development of the missile, currently the subject of much scrutiny vis-a-vis the North, as having the possible capabilities of reaching from North Korea to Japan, reaching from Iran to Israel, and reaching from Libya to our bases and capitals in the Mediterranean region.

Is that part of your statement just to give us a sense of mileage capabilities expressed on the globe rather than in feet, miles or meters; or is there something additional that you are trying to tell us?

Mr. WOOLSEY. It is really the former, Congressman Ackerman. The range of the No Dong is—the North Korean missile is in excess of 1,000 kilometers, and if you just do 1,000-plus kilometer arc from those three countries, one would simply note that some interesting areas that are brought under that potentially lethal umbrella are Japan from North Korea, Israel from Iran and much of southern Europe, and the rest of the Mediterranean from Libya.

But I wasn't trying to communicate anything about any immediate intentions to launch or anything like that.

Mr. ACKERMAN. Thank you.

THE BUSINESS OF NUCLEAR WEAPONRY

You spent a considerable amount of time, and I think rightfully so, in your statement concerning sale and potential sale, the business of nuclear weaponry. What portion of the economy of the countries that are doing the selling are involved in this trafficking? Is this a big part of North Korea's business, for example?

Mr. WOOLSEY. Let me ask Dr. Oehler to address that. The principal problem for some of these countries, in particular North Korea, is hard currency; and ballistic missiles and, potentially, nuclear materials, whereas it might not be a huge share of their overall economy, it could well be a very substantial share of their hard currency earnings.

Mr. OEHLER. In fact, during the Iran-Iraq War, North Korea sold a lot of armaments to both sides and made a lot of hard currency earnings. Since that war stopped, they have been hard up for hard currency earnings, and ballistic missile sales is one of the few

items that is marketable, because international sanctions have stopped much of the transfer of other technologies.

I think that these hard currency earnings go directly back into the military and not into the general economy.

Mr. ACKERMAN. I know it is not your field or mandate, but it immediately raises a question in the minds of some that, from a policy point of view, the implications of what you are saying might seem to indicate that, indeed, regimes such as North Korea starving for hard currency and under restraints from the rest of the world within the area of trade, not being able to have access to hard currency, are almost pushed into a position to trade whatever it is they have to trade in order to get hard currency.

I don't know that you answered this question, but should policymakers be examining the position that we wind up maybe inadvertently placing such regimes in by international trade sanctions?

Mr. WOOLSEY. It is hard to say in any general terms, I think, Congressman Ackerman, what may bear upon the minds of leaders in some of these countries, what balance of sanctions and offered improvement and cooperation is the right balance in order to encourage them to take positive steps.

We—as you sort of implied in your question, we are really in the business of pointing out in the case of these foreign countries their capabilities and the intentions, as far as we know them, of the leaders and their vulnerabilities. At that point, we kind of step back, and the Secretary of State, the Secretary of Defense, the President sort of decide how to balance these things.

But I think your question in terms of implying there is a full scope of behavior that may be encouraged by different types of incentives is right on.

Mr. ACKERMAN. Thank you for that. It seems to me that desperate people sell their bodies and desperate nations sometimes sell their souls. I think one of the things that we as policymakers should be taking a look at is sometimes the well-intentioned motivations of our policies may force those with whom we deal into positions that we are trying to avoid.

Mr. WOOLSEY. I don't want to get into the Secretary of State's business here, but I would say that the recent statement following—public statement following the U.S. negotiations with the North Koreans indicates that very much on the minds of the negotiators and of the State Department in that circumstance was trying to strike some kind of balance in holding forth a positive future to North Korea if it took one route and a negative one if it took the other.

Mr. ACKERMAN. I think that that is one of the bright lights that we are looking at through this muck and mire that is pretty much in the distance.

SALE OF WEAPONS TO TERRORIST GROUPS

Could you enlighten us as to whether or not there are any terrorist groups—and I know the focus of the chairman's hearing is on rogue regimes, but those groups that are not regimes, but are indeed terrorist organizations that function within nations and extraterritorially as well; are there interlocking directorates between some of these terrorist groups? Are there presently any na-

tions, individuals or entities selling weapons of nuclear or chemical or biological dimensions to any terrorist groups or individuals associated with terrorist organizations?

Mr. WOOLSEY. With respect to interlocking arrangements, yes, there are between some, particularly in a single region that serve similar ideological purposes. To get the details of that, I need to have our counterterrorism center come and go through it with you.

But we know of no sales at this point of nuclear, chemical or bacteriological weapons to terrorist groups.

What led me to make the statement that I did in my opening statement is that some of these weapons are considerably easier to work with, transport and even manufacture than nuclear weapons, and some of these groups are quite close to, influenced by and extremely friendly with some of these regimes, particularly in the Mideast, that have been involved in weapons proliferation. So I think it is part of our job in the intelligence community not just to mention to you and to the public matters on which we have hard evidence that X is happening, but rather when we see some very dangerous conditions beginning to arise, such as that coincidence of interest and that coincidence of location between terrorism and weapons of mass destruction, that we give the U.S. Government and the people of the United States, insofar as we can publicly, a heads-up, so to speak, this is something we are now taking very seriously.

ARMS RACE BETWEEN INDIA AND PAKISTAN

Mr. ACKERMAN. Thank you. Lastly, if I may Mr. Chairman, in speaking about the situation in India and Pakistan, you seem almost to indicate that it is not just a possibility but almost likely that, if left alone, there exists a strong possibility for some kind of nuclear confrontation, an arms race building up between those two countries; and I think in reading your statement, as well as in listening to you, it seems that that is the only region of the world where you indicated that indeed it was an arms race, although there are probably other places as well. You did single that out.

The sale as we have seen it in the press by China to Pakistan of M–11 missiles, is that something that we should take very, very seriously or something that just bears a little bit of scrutiny? How dangerous indeed is that and of what kind of magnitude?

Mr. WOOLSEY. Congressman Ackerman, let me again use only very carefully chosen words with respect to the M–11 sale, which is that we are concerned with reports that indicate that China has transferred M–11 missile-related equipment to Pakistan—and again, I can go into this more in executive session or in private with you if you want.

The reason I singled out India and Pakistan is because there is a dynamic to that.

So that arms race that has been going on for some time, and it is a dynamic that indicates to us that both sides are really making extraordinary efforts to—in terms of the sacrifice they are calling on their people to make economically and the rest—to have usable nuclear weapons.

Now, it is not a race in the sense that both sides are trying to rapidly increase the size of their arsenals, but each of those two

countries does regard the other as its main security threat. Each has developed nuclear capabilities, and the level of hostility between the two countries does not seem to be abating. So it is not so much that there is some particular recent occurrence that would lead us after the fashion of the clock that for years was on the cover of the Bulletin of Atomic Scientists getting closer to H hour; it is not that I am moving the hand of the clock up several more minutes; it is more that this is a chronic condition between two countries that are at very serious odds with one another with very sophisticated nuclear capabilities, and one doesn't really at this point see an end to it. And that, in many ways, is its most troubling feature.

I don't want to suggest that there is an event that has occurred within the last year or two which puts us into a flash situation or a flash warning of some kind with respect to the subcontinent.

Mr. ACKERMAN. You just stated, I believe, that both sides have sophisticated nuclear capabilities. Are both sides able to respond to a first strike from the other?

Mr. WOOLSEY. It would depend on their state of readiness. We believe that both sides are capable of assembling a number of nuclear weapons in relatively short order.

Mr. ACKERMAN. Does that include delivery?

Mr. WOOLSEY. Both sides have weapons that can be delivered by aircraft so, yes, assemble and deliver within a relatively short time, either country could.

Mr. ACKERMAN. Perhaps, Mr. Chairman, that could be the subject for a briefing in a different forum.

Mr. LANTOS. We have an endless number of topics.

If you have one more minute, I promised my friend from California that he may ask his second question if he would like to.

Mr. BERMAN. I thank you very much, Mr. Chairman, and I just have to comment with regard to your response to Mr. McCloskey's questions. Periodically we get briefings from the CIA on developments in Iraq in the area of missiles, missile development and other weapons of mass destruction, what is going on; and since every bit of that has now been in the newspapers a thousand times, I think it is fair to say that when you listened to the briefings of the agency about what was happening in Iraq and you looked at our policy at the time toward Iraq, it was the most incredible disconnect between what you were hearing from the Agency and what was going on in policy.

So there is an interesting relationship there which, I guess you are the person who is supposed to bridge that now and have some impact.

U.S. NONPROLIFERATION EFFORTS

My question is for your evaluation of the extent to which our nonproliferation efforts are undercut by our own growing role as the—by a ratio of 6, 8 and I think coming up to a 10-to–1 transfer of military weaponry—conventional, but much of it very sophisticated and advanced, of an offensive nature to other countries; and to what extent that becomes a problem when you deal with the Russians and the Chinese and the Argentinians and the Pakistanis and everybody else in the proliferation area.

You are not in charge of dealing with them, but perhaps you or the gentleman who is focused on missile proliferation—I don't remember your name—could speak to what extent that has any role in undercutting the efficacy of our efforts?

Mr. WOOLSEY. Let me say one word, and then I will turn it over to Dr. Oehler. I think most countries around the world including those who profess not to understand that there is a reasonably clear line—and it is memorialized by these international agreements and regimes—between supplying these three types of weapons of mass destruction, or components for them, or ballistic missiles of the range that would be constrained by the missile technology controlling regime, those types of activities on the one hand versus selling conventional military hardware on the other.

Mr. BERMAN. I agree. But take just the missile part of that and just with advanced offensive-capable bombers and sophisticated bombers and fighters, do you think the rest of the world accepts that distinction, it is OK to trade in one and not in the other?

Mr. WOOLSEY. There are certainly countries that will profess not to accept it, but for ballistic missiles of a sufficient range for which there really is not a good defense today compared with aircraft, in which at least there is a worldwide effort, including sales by all sorts of countries, of very sophisticated air defense hardware, there is at least a sort of two-sided military effort or race that goes on with respect to aircraft and systems to counter aircraft.

The real problem with a country such as Iran, let's say, having 1,000-kilometer-plus ballistic missile is that that can put countries at risk that can't do anything to deal with it, at least not in the short run.

There are answers to ballistic missile defense and so on, which are expensive and still in a relative early stage. I think for ballistic missiles it is the virtually free passage aspect of them, the fact that a country such as Iran or Iraq, if it had missiles of sufficient range, could almost guarantee to the world that they would get through to their targets, that creates the very serious concern. If they had to fly through the air defenses of Saudi Arabia or Israel or whatever country they might threaten, something might get through, but the countries that are friendly to the United States in that part of the world at least have defenses against aircraft.

Mr. LANTOS. Mr. Director, on behalf of the subcommittee I want to express my appreciation both to you and to your associates for an extremely illuminating session. We hope to have you back before long.

This session is adjourned.

Mr. WOOLSEY. Thank you, Mr. Chairman.

[Whereupon, at 12:30 p.m., the subcommittee was adjourned.]

U.S. SECURITY POLICY TOWARD ROGUE REGIMES

TUESDAY, SEPTEMBER 14, 1993

HOUSE OF REPRESENTATIVES,
COMMITTEE ON FOREIGN AFFAIRS,
SUBCOMMITTEE ON INTERNATIONAL SECURITY,
INTERNATIONAL ORGANIZATIONS AND HUMAN RIGHTS,
Washington, DC.

The subcommittee met, pursuant to call, at 3:14 p.m. in room 2200, Rayburn House Office Building, Hon. Tom Lantos (chairman of the subcommittee) presiding.

Mr. LANTOS. The Subcommittee on International Security, International Organizations and Human Rights will come to order.

I first would like to apologize to everyone. We have been on the floor involved with a series of votes which simply could not be helped, and that accounts for the delay beginning. I also want to thank Ken Timmerman and Bob King of the subcommittee staff for helping with the preparation of this hearing.

This town is still basking in the afterglow of yesterday's historic and symbolic breakthroughs. And what we are engaged in this afternoon is a reality check as we look at U.S. security policy as they relate to rogue regimes.

Today we will be dealing with weapons acquisition and supplier networks of rogue regimes.

As we consider the military capabilities and the support networks of these nations, which, by their very actions, have earned a place in the State Department's list of countries supporting international terrorism, and which pose a distinct, although not always a direct, security threat to the United States.

In June, this subcommittee released a study of Iraq's research and military potential. That study showed that despite the most draconian regime of international sanctions ever imposed on a nation since the end of the Second World War, Iraq has managed to rebuild some 80 percent of its military manufacturing capability.

The Iraqi example teaches us that we need to focus greater attention on the efforts of these governments to acquire huge arsenals and manufacturing capabilities for conventional weapons and we must focus on the sale of dual use technology if we want to slow down the proliferation of weapons of mass destruction.

WMD PROGRAMS

Let me say a few words about weapons of mass destruction and rogue regimes.

All of the rogue regimes under discussion, Iran, Syria, Libya, and North Korea, are building a broad range of weapons of mass destruction, nuclear, biological, and chemical weapons.

Frequently these countries are helping one another out, forming a sort of international rogues gallery of would-be mass murderers. North Korea may have enough plutonium for the bomb, and it continues to defy the International Atomic Energy Agency which is seeking to inspect its suspected nuclear weapons sites.

North Korea has become the foremost rogue supplier to other renegade states exporting nuclear capable missile systems throughout the Middle East. Most of its production capability has come from China, the former Soviet Union, and Japan. In one instance, which has come to our attention, it was actually an organ of the United Nations, the United Nations Industrial Development Organization that assisted in the construction of a plant by Western electronics manufacturers in 1987. That plant today supplies computer chips and guidance equipment used in North Korea ballistic missile systems.

Libya is building yet another chemical weapons plant at Tarhuna with the assistance of companies in Switzerland, Austria, and Germany. They are building this plant underground where our satellites cannot observe it as they did the plant at Rabta.

According to a British newspaper report, another new plant is under way new near Benghazi to produce precursor chemicals for the Tarhuna poison gas works. This plant is disguised as an extension of a liquid petroleum products plant and includes a production line capable of turning out more than 100 tons per year of a special alcohol used in making the nerve agent soman.

The main legitimate use of this alcohol is in the production of perfumes, not a booming industry in Qadhafi's Libya. Indeed, the entire world's perfume industry consumes only about 20 tons of it per year, and Libya wants to make five times that amount, perhaps to disguise the bad odor of the Qadhafi regime.

Syria has been a chemical weapons state for most of the past 10 years and is now believed to have several small facilities actively producing nerve gas and biological warfare agents. Many of these are disguised as state-run pharmaceutical plants. Major pharmaceutical companies in Germany, France, the Netherlands, and Britain have supplied chemicals and production equipment in recent years. From China, Syria is receiving extensive assistance in building two ballistic missile assembly plants in Aleppo and Homs. Syria plans to assemble the Chinese M–9 solid fuel missile which can deliver a nuclear warhead to targets up to 600 kilometers away.

Iran is engaged in a widespread effort to develop every type of unconventional weaponry, from chemical to biological to ballistic missiles and nuclear warheads. Ten nuclear facilities have been identified in public sources. Only six of these have been visited by the International Atomic Energy Agency.

Iran's Defense Industries Organization employs over 100,000 workers and churns out everything from rifles and ammunition to rocket propellants, high-speed patrol boats, and a dozen different missiles. Iran has taken a page out of Iraq's book and is using industrial projects to cloak its unconventional weapons program. It

is virtually impossible to tell the difference between a civilian and military end-user in Iran since virtually all importing entities in Iran are either state-run or state-controlled.

WESTERN SUPPLIERS

Let me say a word about suppliers of rogue regimes.

Slowing the proliferation of weapons of mass destruction cannot be accomplished by the United States alone. Unilateral export controls are not the solution to this problem.

Past experience with Iraq and the scandal over the involvement of German companies in building the Rabta poison gas works in Libya have shown that one important deterrent is public exposure. When dealings of these companies with rogue regimes come out into broad daylight, many companies will back off for fear of damaging their reputations.

With this in mind, I have instructed the subcommittee staff to compile a list from publicly available materials of companies that have been identified as suppliers of dual use technology to Libya, Syria, Iran, and North Korea. Today I am releasing that list. It contains information on 400 companies from 40 countries that have supplied goods and production equipment with dual civilian and military applications.

I want to emphasize that some of these sales appear to be perfectly legitimate and involve large reputable corporations. Some exporters appear to have acted in good faith. Their inclusion in our list does not mean that they are guilty of any criminal behavior. Rather it shows the length to which rogue regimes will go to circumvent Western export controls in their determined drive to acquire weapons of mass destruction and the means to deliver them.

There are other cases, however, which are more serious. A conglomerate of European chemical companies led by Bayer AG and Lurgi in Germany that includes Ciba-Geigy in Switzerland has been working for the past 5 years to complete a pesticide plant in Qazvin, Iran, which has been clearly identified by the German Government as a chemical weapons site.

Despite these warnings, the companies have persisted in their efforts to complete the contract and have lobbied the German Government to allow them to make additional deliveries.

In another case, a Swiss subsidiary of Bayer, Bioengineering AG, has been manufacturing special reactor vessels and fermenters for Iran which have direct application to the manufacture of biological warfare agents. Warned against continuing these contracts by the Swiss Government but not forbidden, the company attempted to ship the fermenters in February 1992. Unidentified intruders blew up the equipment during a midnight raid on the premises of this company and struck on two subsequent occasions when the company tried again to deliver this equipment to Iran.

Another corporate proliferator worthy of being singled out is the Leybold Corporation of Hanau, Germany. Leybold and its parent, Degussa AG, has sold vacuum pumps with nuclear weapons and ballistic missiles application to every nuclear wannabe state in the Third World. Its clients include Iraq, Iran, North Korea, Libya, Syria, India, and Pakistan.

Entire Iranian munitions plants are equipped with machine tools from Fritz Werner Corporation of Germany, Friederick Deckel of Germany, and the Georg Fischer company of Switzerland.

GROWING CHINESE ROLE

Chinese state-owned companies are playing an increasing role as suppliers to rogue regimes. The fact that only a dozen Chinese companies are identified for their suppliers of dual use technology—as opposed to 108 German companies, 60 American companies and 30 companies each from France and Great Britain—should not suggest that China has been less active than other suppliers. Rather, the Chinese have displayed a greater talent for subterfuge, well aware that news of these sales could damage their commercial relations with the West.

Furthermore, the lack of a free press in China has meant the total absence—the total absence of public scrutiny. Hundreds of production entities are engaged when Beijing decides to sell ballistic missiles to Syria, Libya, or Iran. We just don't know their names. Our report lists only the most notorious among them.

In many instances, the Chinese serve as transit points for the sale of Western technologies to rogue regimes. Advanced electronics, computers, and sensing devices sold legally to China are incorporated into ballistic missile systems and reexported to countries such as Syria and Iran. The U.S. Customs Service and the Commerce Department's Office of Export Enforcement are currently investigating scores of cases involving Chinese high-technology procurement rings in this country.

U.S. EXPORTS TO IRAN

I would like to say a word about U.S. exports to Iran. On October 23, 1992, former President Bush signed into law the National Defense Authorization Act which included a provision known as the Iran-Iraq Nonproliferation Act of 1992. This amendment extended all sanctions, then applicable to Iraq, equally to Iran; and it barred the sale of all goods and technology that appears on the commodity control lists.

Despite this substantial change in legislation, U.S. sales to Iran have steadily increased over the past 3 years. The United States ranks sixth among Iran's suppliers in the industrialized world. U.S. companies exported $750 million worth of products to Iran in 1992, and our companies have maintained a similar level of sales to Iran during the first half of this year, despite the change in legislation which was intended to cutoff U.S. high-technology sales to Iran because of Iran's continued support for international terrorism and the development of weapons of mass destruction.

During the first 6 months since sanctions were imposed against Iran, nine export licenses worth $11 million were approved for that country all of which, in fulfillment of contracts signed before the new law went into effect. The rest of U.S. equipment shipped during this period, $461 million, involves what are called general destination licenses. Companies who use general destination licenses do not submit individual license applications so that neither the State Department nor the Department of Defense nor the intelligence community gets an opportunity to review these sales as was

intended by law. Only 1 year ago, however, the situation was completely different.

In 1992, 60 percent of our exports to Iran required individually validated licenses. $446 million out of $750 million in sales to Iran last year was equipment under our laws that required special licenses in order to be exported. This year only 2½ percent required licenses. Either there has been a massive shift in the kinds of goods being sent to Iran or something far more sinister is going on here.

I want to spend a moment on potential violations of U.S. law. The subcommittee staff has obtained from the Census Bureau a list of selected U.S. exports to Iran for the first 5 months of this year.

When this list was shown to two separate U.S. export control agencies, they agreed that many of the sales should have required an individually validated license, even under the old rules. Under the new rules, they should not have been considered for export to Iran. This appears to be evidence of a violation of law.

This appears to be evidence of a violation of law. One of the exports in question was shipped directly to the Atomic Energy Organization of Iran; two went to a suspected chemical plant. I was particularly intrigued by the shipment in February of this year of a single computer worth $907,500 which went on a general destination license.

Under the old regulations, any 286 computer sold to Iran required an individually validated license. You can purchase one of those computers for less than $800. This was a computer worth nearly $1 million. Something appears to be seriously wrong here.

Let me conclude by suggesting that the Department of Commerce has apparently decided to exercise a "don't ask don't tell" policy. Exporters are not supposed to ask whether they need a license to ship to Iran and the Department of Commerce won't tell them if they don't ask. I do not believe this is what the Congress had in mind when it approved the Iran/Iraq Nonproliferation Act last fall.

I am very much looking forward to hearing from our distinguished panel of witnesses. They will add to our knowledge on these hearings.

Before hearing from our witnesses, I would like to call on my good friend and distinguished colleague from Nebraska, the Ranking Republican of the subcommittee, Congressman Bereuter, for opening remarks he may care to make.

[The prepared statement of Mr. Lantos follows:]

Statement by Congressman Tom Lantos

Chairman, Subcommittee on International Security, International Organizations and Human Rights

Rogue Regimes (Part II): Weapons Acquisition and Supplier Networks

September 14, 1993

For the past five months, the Subcommittee on International Security, International Organizations and Human Rights has been investigating the military capabilities and support networks of rogue regimes. These are nations which, by their actions, have earned a place on the State Department's list of countries supporting international terrorism and which pose a distinct, although not always direct, security threat to the United States.

In June, the Subcommittee released a study of Iraq's renascent military potential. Our study showed that despite the most draconian regime of international sanctions ever imposed on a nation since World War II, Iraq has managed to rebuild 80 percent of its military manufacturing capability, right before the eyes of International Atomic Energy Agency inspectors.

The Iraqi venture is worthy of further study. Here was a Third World nation, without a well-developed industrial base, which in just twenty years went about building the largest military industrial capability in the Middle East. Before Saddam's ambitions were cut short by Operation Desert Storm, he had built more than 40 major military factories - most of which are up and running again today.

In the past, security analysts, think tanks, and university scholars have tended to focus on the sale of advanced conventional weaponry - those big ticket sales that make for dramatic headlines when they are first announced or revealed. Iraq showed us - it should have showed us - that the proliferation of weapons of mass destruction does not generally occur in the same way. With the exception of ballistic missile sales, these weapons are built, or assembled, in factories that are located in the countries that will be using them. And these factories have for the most part been designed and fitted out by Western companies. Once again, greed is leading some of the biggest corporations in the West to sell out our security to the very rogue regimes that are threatening our interests around the world.

The Iraqi example teaches us that we need to focus greater attention on the sale of dual-use technology if we want to slow down the proliferation of weapons of mass destruction. Computers, machine-tools, electronic test equipment, scientific instruments such as mass spectrometers and gas chromatography units, are vital building blocks to nations seeking to develop their own ballistic missiles and nuclear weapons.

Most of this equipment is subject to stringent export controls. At least, that is the theory.

The Enhanced Proliferation Control Initiative

But rogue regimes seeking to build unconventional weaponry also need a wide variety of commonly available manufacturing equipment, chemicals, and industrial gear which are not subject to specific export controls, precisely because they are available from manufacturers around the globe. For this reason, President Bush instructed the Commerce Department and other relevant U.S. agencies in November 1990 to devise new regulations as part of his Enhanced Proliferation Control Initiative (EPCI).

Under EPCI regulations, U.S. exporters are now required to obtain an individually validated license to export any goods - even a pencil or a screwdriver - to foreign entities or projects of "proliferation concern." The intent is to catch those goods and technologies that "fall through the cracks" of the multilateral proliferation control regimes. Under EPCI, the Commerce Department is required to inform exporters which projects and entities are on the black list, so to speak, to prevent equipment from reaching Iranian or Iraqi or Syrian or Libyan factories that are producing unconventional weaponry.

As this investigation progressed, we became interested in finding out just how this system works. The Commerce Department informed us that they do not in fact publish a list of projects of proliferation concern, since that might jeopardize intelligence sources and methods. But if a company comes to them and asks if a particular export is okay, then Commerce will "inform" them that they require an individually validated license because of EPCI concerns.

We asked Commerce how many "informed" notices they had sent out since the EPCI rules went into effect more than two years ago?

One would think this would be an easy question to answer. After all, EPCI was enacted because of our failed export control policy toward Iraq. The Commerce Department was under a lot of public pressure to improve its performance. One would have thought that Commerce would want to keep very

close track of this information. However, the Bureau of Export Administration told us that Commerce does not keep records on EPCI cases.

The Subcommittee wrote Secretary Brown on August 31, 1993 asking for a detailed report on EPCI cases and informed notices. I am sure he shares our concern that the Department keep proliferation at the very top of its export control agenda, and will make every effort to improve the Commerce Department's reporting procedures. [A copy of this letter is included in the hearing record].

Just the way the EPCI procedures are set up, however, begs the question. How many companies are actually going to contact the Commerce Department to express their doubts as to reputability of their client? The only case we know about - and this happened in 1989, before the EPCI rules were even conceived - was of a New Jersey exporter that warned Commerce that the special furnaces it had contracted to sell to Iraq could also be used in a nuclear weapons program. Even more astonishing than the fact that a company would willingly raise doubts about its own client was the reaction of the Commerce Department, which urged the company to disregard the nuclear capabilities of its equipment, the military activities of its client, and make the sale regardless. I am sure that Secretary Brown is making every effort to ensure this type of gross disregard doesn't happen again.

WMD Programs

All of the rogue regimes under discussion by the Subcommittee today - Iran, Syria, Libya, and North Korea - are deeply engaged in building a variety of mass destruction weapons. In some areas, they are helping one another out, forming a sort of international rogues gallery of would-be mass murderers.

North Korea may have enough plutonium for the bomb, and continues to defy the International Atomic Energy Agency, which is seeking to inspect suspected nuclear weapons sites. This backward, Stalinist holdout has additionally become the foremost rogue supplier to other rogue regimes, exporting nuclear-capable missile systems throughout the Middle East. Most of its production gear has come from China, the Former Soviet Union, and Japan, where associations of North Korean residents have served as procurement fronts. In one instance that has come to my attention, it was actually an organ of the United Nations - the UN Development Organization - that sponsored the construction of a plant by Western electronics manufacturers in 1987. That plant is today supplying computer chips and guidance equipment used on North Korean ballistic missile systems. UNIDO has also trained North Korea scientists in a variety of advanced technology manufacturing skills, and has promoted the establishment of a machine-tools industry in North Korea.

Libya is building yet another chemical weapons plant in the village of Ras Fam Mullagha, near the town of Tarhuna, 65 km southeast of Tripoli. To acquire technology abroad, it is disguising this plant as part of the "Great Man Made River" project, which is being spearheaded by the French construction giant, Bouygues. Companies in Switzerland, Austria, and Germany have supplied tunneling machines and special ventilation equipment, enabling the Libyans to build this plant underground where our satellites cannot observe it as closely as they did the Rabta plant. India has supplied chemicals for mustard gas and nerve agents.

According to Britain's Guardian newspaper[1], another new plant is underway near Benghazi that will produce precursor chemicals for the Tarhuna poison gas works. The Benghazi facility is being disguised as an extension of a Liquid Petroleum Products (LPP) plant, and will include a production line capable of turning out more than 100 tons per year of pinacolyl alcohol, a key ingredient for the nerve agent soman. This chemical's main legitimate use is in the production of perfumes - not a booming industry in Qaddafi's Libya. Indeed, the entire world perfume industry only consumes some 20 tons per year. And Libya wants to make five times that amount - I am sure, to disguise the bad odor of the Qaddafi regime.

Libya continues to purchase equipment for its ballistic missile programs from German suppliers, including the Fritz Werner company and Leybold AG, one of the world's foremost suppliers of advanced technology. Libya hired a team of German engineers in the late 1970s to build a long-range rocket. Some of these engineers are still believed to be working on contract for Qaddafi. To the best of our knowledge, the German government has done nothing to limit their activities.

On Dec. 24, 1991 Libya and North Korea signed a major trade and technology transfer agreement, that may have included a provision for Libya to purchase North Korean SCUD-C and Nodong-1 missiles. International sanctions against Libya for its involvement in the Pan Am 103 bombing may have made it more difficult, but not impossible, for Libya to continue its foreign purchases of unconventional weapons and production gear.

Syria has been a chemical weapons state for most of the past ten years, and is now believed to have several small facilities actively producing nerve gas and biological warfare agents. Many of these are disguised as state-run pharmaceuticals plants. Major pharmaceuticals companies in Germany, France, the Netherlands, and Britain have supplied chemicals and production equipment in recent years, while a U.S. firm, Baxter International, contracted to build an entire factory for the Syrian Ministry of Defense. CIA Director James Woolsey has included Syria in his list of

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[1]Alan George, "Libyan Poison Gas Deal Blocked," The Guardian, March 22, 1993.

countries with a biological weapons capability - a very unsettling prospect even as peace with Israel approaches.

From China, Syria is receiving extensive assistance in building two ballistic missile assembly plants, located in Aleppo and in Homs. Syria plans to assemble the Chinese M-9 solid fuel missile, which can deliver a nuclear warhead to targets up to 600 kilometers away. A Chinese ship carrying some 30 M-9 launchers was tracked en route to Syria in June 1991; additional deliveries of missile assemblies have occurred since. The company orchestrating these missile deals is the China Precision Machinery Import-Export Corporation, the same entity that has sold missiles to Pakistan, Iran, and Saudi Arabia. China is also supplying Syria with nuclear technology, including a small research reactor.

Some reports allege that Libya is helping to finance this $170 million missile deal, and expects to receive sixty missiles in exchange for its payments. If so, this is yet another example of cross-fertilization among rogue regimes, a pattern I suspect we are going to see with increasing frequency in the years to come.

Syria got its start in unconventional weapons production and learned about the procurement of dual use technologies from an unusual source: the leading government-run scientific research institution in France, the CNRS (Centre Nationale de Recherche Scientifique). The CNRS signed a series of cooperation agreements with Syria starting in 1969 that established the Syrian Scientific Research Council, also known by its French acronym, CERS (Centre d'Etudes et de Recherche Scientifique). As CIA Director Woolsey testified before the Subcommittee in June, CERS is the leading research & development agency for Syria's unconventional weapons programs, and reports directly to Syrian President Hafez al Assad. CERS regularly sends out procurement teams to Western Europe and the United States in search of specialized production equipment. Although our Commerce Department blacklisted CERS several years ago, our investigation has determined that Germany, France, Belgium, and Britain continue to approve the sale of dual-use technology to CERS, including high temperature furnaces of use in ballistic missile and nuclear weapons programs. The furnaces were delivered last year by German firms and were approved for sale by the German Economics Ministry.

Iran is engaged in a widespread effort to develop every type of unconventional weaponry, from chemical and biological agents, to ballistic missiles, fuel-air explosives, and nuclear warheads. Ten nuclear facilities have been identified in public sources; only six of these have been visited by the IAEA. Iran's Defense Industries Organization employs over 100,000 workers, and churns out everything from rifles and ammunition to rocket propellants, high-speed patrol boats, and more than ten different missiles. Iran has torn a page out of Iraq's book and is using industrial development and reconstruction projects to cloak its

unconventional weapons programs. Purchases earmarked for so-called civilian companies and projects are in fact intended for the Iranian military. As we have been told during this investigation by export control officials in various U.S. government agencies, there is simply no way of telling the difference between a civilian and military end-user in Iran, since virtually all importing entities in Iran are either state-run or state-controlled. The same company that is in charge of improving Iran's telecommunications network, for instance, is also engaged in producing frequency hopping radios for the Iranian military. Civilian steel plants are also making rocket cases for ballistic missiles.

For more detailed information on the unconventional weapons programs of these countries, I cannot recommend too highly a report released in August 1992 by the Simon Wiesenthal Center in Los Angeles, entitled "Weapons of Mass Destruction: the cases of Iran, Syria, and Libya." I also understand that the Monterey Institute is about to publish a detailed study on Third World ballistic missile programs that will include a chapter on Iranian programs that was written by Josephe Bermudez, one of our witnesses today.

Suppliers List

Slowing the proliferation of weapons of mass destruction cannot be accomplished by the United States alone. Unilateral export controls are not the solution to this problem. The extent to which multilateral controls and policies can slow or stop the spread of critical technologies to rogue regimes is a subject of ongoing debate.

However, past experience with Iraq, and the scandal over the involvement of German companies in building the Rabta poison gas works in Libya, have shown that we in Congress have one very powerful tool that is not exploited frequently enough: public exposure. When their dealings with rogue regimes come out into the light, many companies will back off for fear of damaging their reputation.

With this in mind, I instructed the subcommittee staff to compile a list from publicly available material of companies that have been identified as suppliers of dual-use technology to Libya, Syria, Iran, and North Korea. I am releasing that list today. It contains information on more than four hundred companies from forty countries that have supplied goods and production equipment with dual civilian and military applications.

Some of these sales appear to be perfectly legitimate and involve large reputable corporations. For instance, BP America was seeking approval late last year to build a textile factory in Iran. They were turned down by the White House in January because the chemical processes used to make the synthetic fibers Iran sought could also be applied to chemical weapons manufacturing. In a similar case,

the Ayres Corporation of Albany, Georgia sought approval to sell crop-dusting aircraft to Iran but was turned down because similar aircraft had been used by Iraq to spray civilians with chemical warfare agents.

In cases such as these, the exporters appear to have acted in good faith. Their inclusion in our list does not mean they are guilty of criminal behavior; rather, it shows the lengths to which rogue regimes will go to circumvent Western export controls in their determined drive to acquire weapons of mass destruction and the means to deliver them.

I can be less sanguine about other cases. A conglomerate of European chemical companies, led by Bayer AG and Lurgi in Germany that includes the pharmaceuticals company Ciba-Geigy in Switzerland, has been working for the past five years to complete a pesticides plant in Qazvin, Iran that has been clearly identified by the German government as a chemical weapons site. Despite these warnings, the companies have persisted in their efforts to complete the contract and have lobbied the German government to allow them to make additional deliveries. Unfortunately, two of the four production lines at this plant were already built by these companies before the German government intervened to block further deliveries.

In another case, a Swiss subsidiary of Bayer, Bioengineering AG, has been manufacturing special reactor vessels and fermenters for Iran which have direct application to the manufacture of biological warfare agents. Warned against continuing these contracts by the Swiss government but not forbidden, the company attempted to ship the fermenters in February 1992. Unidentified intruders blew up the equipment during a midnight raid on the company premises, and struck on two subsequent occasions when the company tried again to deliver this equipment to Iran. .

Another corporate proliferator worthy of being singled out is the Leybold Corporation of Hanau, Germany. Leybold and its parent company, Degussa AG, have sold vacuum pumps and high technology furnaces with nuclear weapons and ballistic missile applications, to every nuclear wannabe state in the Third World. Clients include Iraq, Iran, North Korea, Libya, Syria, India, and Pakistan. Leybold officials say that since March of last year they have turned over a new leaf and will no longer sell such technologies to countries of proliferation concern. The company's Washington lobbyist, Burson-Marsteller, has contacted the Committee on Foreign Affairs on several occasions in an attempt to clear Leybold's name. However, when we requested that Leybold supply additional information to support these claims, the corporate guns went silent. To the best of our knowledge, there has been no substantial decline in Leybold's foreign sales as a result of its new corporate principles.

The Fritz Werner Corporation, also of Germany, stands out for its persistent willingness to help Libya and Iran build conventional weapons and ballistic missiles. Documents obtained by the Subcommittee from the Defense Industries Organization of Iran at the IDEX '93 defense exhibition in Abu Dhabi show entire Iranian munitions plants equipped with machine tools from Fritz Werner, from Friederick Deckel, and from the Georg Fischer company of Switzerland. In Libya, Fritz Werner has been supplying equipment to the Al-Fatah ballistic missile program directly and through Leybold AG.

Chinese state-owned companies are playing an increasingly role as suppliers to rogue regimes. The fact that only a dozen Chinese companies are identified for their supplies of dual-use technology - as opposed to 108 German companies, 60 American companies and 30 companies each from France and Great Britain - should not suggest that China has been less active than other suppliers. Rather, the Chinese have displayed a greater talent for subterfuge, well aware that news of these sales could damage their commercial relations with the West. Furthermore, the lack of a free press in China has meant a total absence of public scrutiny. Hundreds of production entities are engaged when Beijing decides to sell ballistic missiles to Syria, Libya, or Iran: we just don't know their names. Our report lists only the most notorious among them.

In many instances, the Chinese are serving as transit points for the sale of Western technologies to rogue regimes. Advanced electronics, computers, and sensing devices sold legally to China are incorporated into ballistic missiles systems and re-exported to countries such as Syria and Iran. The U.S. Customs Service and the Commerce Department's Office of Export Enforcement are currently investigating scores of cases involving Chinese high-technology procurement rings in this country. I believe the Commerce Department would discover a massive diversion of U.S. goods to Chinese ballistic missile exports if they carried out their statutory duty and conducted pre-license and post-shipment inspections in China.

The case of Stemme

Informants in Germany have provided documents to the Subcommittee detailing the proposed sale by a Berlin company, Stemme GmbH, of remotely piloted vehicles for use as battlefield reconnaissance platforms and for terrorist attacks.

Unpiloted aircraft similar to these were used by our forces with great success during Operation Desert Storm. They allow commanders to receive real time video footage of the enemy, so they can better deploy their forces on the battlefield.

The Stemme S10 RPV is extremely advanced. Because of its small size and extremely silent engine, it can evade most surveillance radar and escape detection. Low fuel consumption allows it to fly long distance missions up to 2600 kilometers from its launching point. In its commercialized version, it can carry a payload of 100 kilograms. With slight modifications, it could carry as much as five or six times that weight. If Iran were seeking to drop a nuclear weapon on the Saudi oil fields or on Israel, it could find no better weapon. I am told by experts in this field - and I have appended the specifications of this aircraft to my testimony - that these aircraft perform very much as would a cruise missile.

Our informants tell us that the Stemme company has taken extraordinary precautions in order to make this sale, valued at just over $3 million. Because it is unlikely the German government would allow such a sale if declared openly, Stemme is going through the intermediary of a small aerospace company in Jasienica, Poland. The deal involves setting up an entire production line for the Stemme S10 in Iran, and the training of Iranian workers in Germany. In addition to complete factory tooling, Stemme is selling Iran advanced composite materials such as carbon/carbon, Kevlar, and Aramid, which have applications for ballistic missiles as well. The Iranian purchaser has been identified as a Mr. Abdel Ghomer, an engineer with the Defense Industries Organization of Iran.

I would hope that the German government would take the necessary steps to prevent this sale immediately.

U.S. exports to Iran

Iran was placed on the terrorist list by the State Department in 1984. This meant the mandatory imposition of stringent export controls on a broad range of dual-use technology. These controls were tightened in 1987, and again in 1989, to cover virtually all computers, machine-tools, large diesel engines, commercial aircraft, navigation equipment, electronic test equipment, and scientific instruments.

On Oct. 23, 1992, President Bush signed into law the National Defense Authorization Act (NDAA), which included a provision authored by Senator John McCain known as the Iran-Iraq Nonproliferation Act of 1992 (PL 102-484). This bill extended all sanctions then applicable to Iraq equally to Iran, and barred the sale of all goods and technology that appear on the Commodity Control Lists.

You would think that such a dramatic legislative step would have a drastic effect on U.S. sales to Iran. But this is not so. In fact, U.S. companies, apparently with the encouragement of our Commerce Department, have been steadily increasingly sales to Iran over the past two years.

If you look at the attached table of Exports to Iran from OECD countries you will see that last year the U.S. ranked sixth among Iran's suppliers in the industrialized world. U.S. companies racked up nearly $750 million in sales to Iran. Our companies have maintained a similar level during the first half of 1993 - despite what was intended by lawmakers to be a total cutoff in U.S. high technology sales to Iran because of Iran's continued support for international terrorism and its development of mass destruction weapons.

In response to our queries, the Commerce Department informed us that during the first sixth months since the NDAA went into effect, nine export licenses worth $11.6 million were approved for Iran, all of which had contract sanctity - in other words, which involved contracts signed before the new law went into effect. The rest of the U.S. equipment shipped to Iran during this period - and we are now talking about $461 million from November 1992 through May 1993 - involved what are called General Destination (G-DEST) licenses. Companies using G-Dest licenses do not submit individual license applications, so that neither the State Department, the Department of Defense nor the intelligence community gets an opportunity to review these sales, as was intended by law.[2]

Only one year ago, the situation was inversed. For all of 1992, the Commerce Department approved a total of 135 individually validated licenses (IVLs) for Iran, worth $446.1 million. That was out of total sales to Iran worth $750 million. In other words, until the Iran-Iraq Nonproliferation Act went into law on October 23, 1992, 60% of all U.S. shipments to Iran required an individually validated export license, while under the tougher new rules, only 2.5% of U.S. exports to Iran apparently require licensing.

Now this is really quite extraordinary. Either we are shipping inferior goods, or somebody is telling us a cock and bull story.

Potential violation of U.S. law

I have obtained a document from the Census Bureau which sheds some light onto what has apparently happened. This is a month by month breakdown of selected U.S. exports to Iran for the first five months of this year.

The listing provides the unified tariff code, a description of the commodities exported, the quantities involved, the dollar value, and the type of license authority used - IVL or G-Dest.

Let me read out just a few of these items and how they were shipped.

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[2] Legal counsel consulted by the Subcommittee maintains that PL-484 does not allow for contract sanctity, nor does it grant the Commerce Department the discretionary power to grant exceptions, or to allow licensable equipment to be shipped under G-Dest authority.

- Toxins, Cultures of Micro-organisms: G-DEST
- Turbojet Turbines, excluding aircraft, thrust exceeding 25 kilo-Newton's: G-DEST
- Air or Vacuum pumps: G-DEST
- Machinery for Liquefying Air or other gases: G-DEST
- Centrifuges: G-DEST
- Parts of Centrifuges :G-DEST
- Machine-tool holders and self-opening dieheads :G-DEST
- Gas Separation equipment :G-DEST
- Hydraulic presses, metal forming :G-DEST
- Electric generating sets :G-DEST
- Spectrophotometers :G-DEST
- Electric Spectrometers and Spectrographs :G-DEST :
- Gamma camera system for detecting Ionizing radiations :G-DEST
- Laboratory furnaces :G-DEST
- Gas turbine engines, power exceeding 5,000 kW :G-DEST
- Machines as special attachments for machine tools :G-DEST
- Parts of Metalworking machine-tools for cutting gears :G-DEST
- Cathode-Ray Oscilloscope :G-DEST

I invite you to compare these items to the list appended to my statement that was supplied by the Commerce Department of licensable goods "which will be subject on application to a policy of denial."

Weprovided the same lists two separate U.S. export control agencies, and the response we got was the same. Most of these sales should have required an individually validated license, even under the old rules. Under the new rules, they never should have been considered for export to Iran, period. This is prima facie evidence of a violation of law.

One of the exports in question was shipped directly to the Atomic Energy Organization of Iran; two went to a suspected chemical weapons plant. I was particularly intrigued by the shipment in February of this year of a single computer worth $907,500. Once again, it went on a G-Dest license. Under the old regulations, computers with a speed of 6 MTOPS were controlled for Iran and required an individually validated license. That's about the power of an IBM compatible 286 machine, which sells today for less than $800.

Another potential explanation of this situation was provided to the Subcommittee by Peter Sullivan, the Acting Deputy Undersecretary of Defense for Trade Security Policy. In a letter to the Subcommittee on August 2, 1993, Mr Sullivan noted that the Commerce Department "is not required to obtain the concurrence of or consult with the Department of Defense or any other department" in making commodity classifications that would effectively remove given items

from the control lists. "DoD has encouraged Commerce to refer commodity classification requests to DoD for review. On occasion, Commerce has done so, but has not established a standard referral process."

When it comes to proliferation controls, the Commerce Department has apparently decided it would exercise a "don't ask, don't tell" policy. Exporters are not supposed to ask whether they need an license to ship to Iran, and the Commerce Department won't offer to tell them so long as they don't ask. If exporters do ask, then the Commerce Department may, without consulting any other governmental agency, simply remove items from the commodity control lists to permit them to be shipped on a G-Dest license.

This is not what Congress had in mind when it approved the Iran-Iraq Nonproliferation Act.

Section 6(j) of the Export Administration Act requires the Commerce Department to provide the Committee on Foreign Affairs with 30 day prior notification before any license is approved for the export of goods or technology to countries on the terrorist list. According to the logs of our Committee, however, the last such notification was received here in 1987. I have therefore requested that Secretary Brown provide this Subcommittee with a report on all licenses approved to countries on the terrorism list. I am also asking him to supply a report on any commodity classifications made by Commerce since the enactment of PL 102-484.

Because the issues here are so serious - they are literally of life and death - the Subcommittee will hold additional hearings in the future on this subject, and is studying potential legislative measures to improve our nonproliferation control system. Not only must the U.S. put its own house in order, but we must secure greater cooperation from our allies to ensure that U.S. companies are not put at a competitive disadvantage by refusing contracts, only to have foreign companies leap into the breach.

Mr. BEREUTER. We have had difficulty getting started today because of the house voting schedule. I am anxious to hear our distinguished panel. I ask unanimous consent to have my opening statement made part of the record so that we can proceed.

Mr. LANTOS. Without objection, we will do so.

[The prepared statement of Mr. Bereuter follows:]

PREPARED STATEMENT OF HON. DOUG BEREUTER

ROGUE REGIMES

Thank you, Mr. Chairman. I commend you for scheduling this very timely and important hearing. I fully share the Chairman's concerns regarding the risk of proliferation of the technology associated with weapons of mass destruction to rogue regimes such as Iran, Iraq, North Korea, and Libya.

One of my longstanding concerns is with the "brain drain" and "loose nukes" problem emanating from the former Soviet Union.

In the House I sponsored Senator Brown's (R–CO) successful legislation that facilitated the emigration of some 750 unemployed Russian nuclear scientists to the United States. The goal was to act as an emergency safety valve in keeping the best Russian talent out of the hands of Saddam Hussein, Col. Qhadaffi, and others. However, this was admittedly only a stop-gap measure, and the problem is enormous.

I have no doubt that the overwhelming majority of Russian scientists are honorable and responsible individuals. They surely recognize the dangers in working for someone like Saddam Hussein. But with the continuing confusion and shortages, the temptations surely will increase.

And we must also be concerned about various technicians and workers who might have the opportunity to steal nuclear material, or the military officer who cannibalizes his equipment and sells high technology components on the black market.

Through the Nunn-Lugar program, the United States is trying to help Russia maintain control over Soviet nuclear weapons and technology. Yet, the problem is enormous, and it will remain a major problem for decades to come.

While Russian or Soviet "loose nukes" is perhaps the most serious threat, there obviously are other very important matters. The chairman has referred to several of these concerns—the Chinese export of ballistic missiles and key components; the aggressive pursuit of weapons of mass destruction by North Korea, Iran, and the other rogue regimes; and the export of sensitive technologies by Western companies.

The subcommittee is fortunate today to have such outstanding witnesses to share their views on these matters. I look forward to hearing from them.

Mr. LANTOS. I understand that Mr. Potter needs to leave to catch a plane by 4 o'clock, so we will begin with you. Mr. Potter is Director of the Program for Nonproliferation Studies at the Monterey Institute of International Studies.

Mr. Potter, your prepared statement will be entered in the record in its entirety and you may proceed in any way you choose.

STATEMENT OF WILLIAM POTTER, DIRECTOR, PROGRAM FOR NONPROLIFERATION STUDIES, MONTEREY INSTITUTE OF INTERNATIONAL STUDIES

Mr. POTTER. Thank you very much, Mr. Chairman.

I am very pleased to have the opportunity to testify before the subcommittee on the issue of the proliferation risks posed by nuclear exports from the Soviets successor states.

By way of introduction to the topic, I believe it is useful to note that Soviet nuclear export and nonproliferation policy was noteworthy for the unusual degree to which it was in concert with that of the United States. This cooperation persisted during even the most troubled periods of superpower relations in the 1970's and 1980's and was reflected in regular bilateral consultations and in a variety of multilateral fora.

Notwithstanding this cooperation and overall commendable record on nonproliferation, the Soviet Union in the late 1980's and early 1990's undertook a number of nuclear export initiatives that signaled a less prudent approach to nonproliferation. These initiatives included efforts to market goods and services to non-NPT parties without requiring the application of so-called full scope safeguards as a condition of export.

During the same period, the Soviet Union also adopted a more lax nuclear export policy toward NPT states and expressed a readiness, for example, to sell South Korea sensitive nuclear technology including uranium enrichment and fast breeder reactor processes. Although none of these export initiatives were prohibited by the NPT, they implied that even long-time supporters of nonproliferation were for the right price prepared to sell nuclear equipment, technology, and services to potential proliferators.

The basic economic and domestic political conditions which encouraged a reorientation in Soviet nuclear export policy under Gorbachev remain today, but in a more acute form. Nuclear goods and services along with other defense-related products are among the few commodities from the former Soviet Union that are in demand abroad and are able to generate hard currency. They also are increasingly available to private and quasi-private entrepreneurs who have found a foothold in the nuclear export industry previously monopolized by the state-run firm Techsnabexport.

NUCLEAR SMUGGLING

It is important to emphasize at the outset, nevertheless, that most of the more sensational accounts of black market activities involving nuclear materials of NIS origin have not been substantiated. There is no hard evidence, for example, that nuclear weapons, nuclear weapon components, or significant quantities of weapon grade fissile material has been smuggled out of the Soviet successor states.

Unfortunately, conditions in the former Soviet Union are such that many of the reports are plausible if not true. One must be very careful not to discount the potential for proliferation-significant black market exports from the Soviet successor states based on what has been discovered to date.

There are also indications that governmental organs in some of the newly independent states may tolerate if not officially sanction the export of sensitive nuclear commodities with little regard for their proliferation implications. What is perhaps most surprising given the economic chaos in the former Soviet Union is the absence of more substantial cases of nuclear smuggling.

To be sure, nuclear-related items have found their way out of the Soviet successor states. Germany alone is alleged to have carried out over 100 arrests associated with efforts to smuggle nuclear material originating in the Republics of the former Soviet Union.

The Government of Belarus also has acknowledged a number of illicit transactions involving its territory including the interdiction of Russian uranium destined for Poland. According to Russian nuclear regulatory officials, even the Ministry of Atomic Energy recently has confirmed that some quantities of fissile material has been stolen from its stockpiles.

While one can not discount the possibility of undetected and militarily significant nuclear trade, the overwhelming majority of arrests and confirmed cases of smuggling attempts to date have involved small quantities of low-enriched uranium from civilian nuclear reactors, nonweapons-related radioactive elements, such as cesium, cobalt and strontium, and bogus goods falsely promoted as nuclear.

No uranium that has been seized, to the best of my knowledge, has been enriched beyond 3 percent and most of the minuscule amounts of plutonium that has been confiscated has been in the form of flakes from smoke detectors.

The area in which nuclear related trade from the former Soviet Union has flourished with scarcely a peep from Western governments is in dual-use materials. The two principal transgressors appear to be Ukraine and Estonia.

EXPORTS FROM UKRAINE AND ESTONIA

The Ukrainian case is the less surprising of the two given Ukraine's extensive and diverse nuclear-related capabilities, its desperate search for hard currency earnings, and its ambiguous stance toward nuclear nonproliferation.

The center for producing nuclear-related dual-use items in Ukraine is at Dneprodzerzhinsk—until recently a closed military-industrial production complex. Dneprodzerzhinsk hosts a number of facilities for the production of heavy water, zirconium and hafnium.

It is the single production site in the former Soviet Union for ion exchange resins used in the so-called Asahi chemical exchange process of uranium enrichment.

According to a U.S. firm which became part owner of one chemical plant at Dneprodzerzhinsk, its Ukrainian partner has already shipped some 45 tons of hafnium and zirconium, 2 of the 65 items on the Nuclear Suppliers Group restricted list, to Belgium and the Netherlands where they sat for months at docks in Antwerp and Rotterdam awaiting export to unknown third parties.

An additional shipment of 11 tons of hafnium from the same complex was detained in the fall of 1992 by Hungarian authorities who were suspicious about its end use. All of these Ukrainian produced commodities would be subject to stringent export control if Ukraine were a party to the April 1992 Nuclear Suppliers Group accord on dual-use items.

Unfortunately, it is not; nor has it been invited to join the Nuclear Suppliers Group.

A less well-known and more surprising major exporter of dual-use items from the former Soviet Union is Estonia, a 1992 signatory of the Nuclear Nonproliferation Treaty, but not a party to the 1992 Nuclear Suppliers Group accord. Although lacking in indigenous production capability, Estonia recently has emerged as one of the world's leading exporters of rare metals, some of which have nuclear weapons applications.

In one bizarre case last year, 4 tons of Russian zirconium was supposed to be routed to Estonia by an American-owned firm ostensibly for purposes of jewelry production. When contacted by suspicious Russian export control officials, the Estonian Government

could not guarantee that Estonia was the end user of the material which was of a grade and quantity incompatible with jewelry manufacturing purposes.

This particular license application was denied, but Russian officials believe large quantities of dual-use metals exported from Estonia ultimately find their way to states coveting nuclear weapons.

A major export control problem results from the fact that none of the nuclear facilities in the former Soviet Union are under international safeguards. The bulk of these sites are well known and are concentrated in Russia, which is not obliged to place any of its facilities under safeguards by virtue of its status as a nuclear weapons state party to the nonproliferation treaty.

Less well known is the presence of nuclear fuel cycle facilities and nuclear material stockpiles in the non-Russian Republics. Although these nuclear assets are not likely to be adequate to support an indigenous nuclear weapons program—with the possible exception of Kazakhstan—they do pose significant proliferation risks from the standpoint of nuclear exports.

NUCLEAR EXPORTS FROM OTHER CIS STATES

In my prepared written statement, I have a table detailing these nuclear assets in each of the republics. At this time I will only note a few of the more proliferation significant sites. The most controversial and potentially significant fuel cycle facility outside of Russia is Navoi in Uzbekistan where there may be a pilot uranium enrichment facility, although its characteristics and present status are in doubt. I say more about that in my written statement.

The non-Russian states also have nuclear research and training centers in Yerevan in Armenia, Riga in Latvia, Minsk in Belarus, Kiev and Sevastapol in Ukraine, Almaty and Semipalatinsk in Kazakhstan, Tbilisi and Sukhumi in Georgia and Tashkent in Uzbekistan. Many of these centers are co-located with research reactors that are fueled with highly enriched uranium.

For example, the three research reactors at Semipalatinsk have a total uranium 235 inventory of 24 kilograms, at least 9 kilograms of which is probably enriched to over 90 percent.

A greater nuclear export and nonproliferation risk is posed by the unsafeguarded liquid metal fast breeder reactor at Aktau in Kazakhstan. This reactor, used for both desalination and electricity generation purposes, is capable of producing over 100 kilograms of weapons grade plutonium a year. It is not known how much plutonium has been produced by the Kazakhstani reactor since it began commercial operation in 1973 or how much unsafeguarded plutonium remains at the reactor site.

One additional site in Kazakhstan is of particular importance from the standpoint of unsafeguarded nuclear exports. It is the Ulbinsky Metallurgy Plant in Ust-Kamenogorsk. This plant is the largest producer in the former Soviet Union of beryllium used in civilian nuclear power reactors and also in the manufacture of nuclear weapons.

The plant also produces nearly all of the fuel pellets used in Soviet-manufactured reactors. These pellets contain uranium already enriched to a low level at gas centrifuge plants in Russia. As such they may be attractive to countries with nuclear weapons ambi-

tions such as Iran and Iraq because the initial, most energy consuming part of enrichment has already been completed.

The fuel pellets can also be used once crushed to obtain uranium tetrachloride for use in a calutron enrichment process. Interestingly enough, Kazakhstan's minister for science and technology only a month ago offered to sell India these low-enriched uranium pellets.

Implementation of effective nonproliferation strategy in the former Soviet Union is hindered by the low priority most policymakers attach to the issue of export controls. In most cases, this is not because national policymakers are opposed to the principles of export control and nonproliferation. Instead it is a product of only faint recognition of the issue's relevance to their immediate situation in which they struggle to survive from one crisis to the next.

Unfortunately, even for those successor states where there may be some recognition of the importance of export control such as Belarus, budget deficits and a shortage of trained personnel remain serious obstacles to meaningful corrective action. Only in Russia, which inherited most of the Soviet Union's nuclear export control structure, can one speak of a professional cadre of nonproliferation experts, well-versed in such matters as export control licensing, material accounting, physical protection and international safeguards.

Even in Russia, which in 1992 adopted significant new export control measures, problems persist because of a combination of bureaucratic, legal and economic factors. A battle, for example, continues to be waged among the Ministry of Foreign Affairs, the Ministry of Foreign Economic Relations, and the Ministry of Economics over the desirability of certain nuclear exports to Iran and India.

A potential for conflict of interest and export control abuse also arises for the tendency of the head of the Export Control Commission, which was created last year, to also direct the Commission for Military and Technology Cooperation, a formerly secret body whose mandate is to promote the export of defense items. The danger of efforts to emasculate the Export Control Commission is heightened by the fact that the entire Russian export control structure continues to derive its legal base from executive decrees rather than parliamentary legislation.

THE BRAIN DRAIN

In addition, poor pay, alternative employment opportunities in the private sector, and the perception of a reduced impact on policy outcomes are leading to a brain drain from the Ministry of Economics and the Ministry of Foreign Affairs. Such an exodus will clearly impede the development and implementation of sound nuclear export and nonproliferation policy.

The economic and political constraints under which the Russian export control system functions are evident in the decisions apparently sanctioned by the new Export Control Commission to sell Iran two nuclear power reactors and to provide China with nuclear assistance including reactors and possibly an uranium enrichment plant.

Russia previously had concluded a similar deal with India which collapsed when Russia was unable to provide the credit promised by its predecessors. It appears to have pursued reactor sales with Pakistan and possibly Algeria. Although these sales do not violate Russia's NPT commitments or other formal nonproliferation obligations, they are at odds with prudent nuclear export policy. They also have the effect of encouraging other Soviet successor states to subordinate nonproliferation objectives to those of economic gain.

Notwithstanding certain shortcomings, Russia generally has taken positive steps to regulate nuclear exports. However, these actions are under-minded by the absence of parallel export control bodies and procedures in the non-Russian Republics.

As a consequence, one confronts the problem of the "weakest link." That is, even if controls are in rather good shape in Russia, the absence of controls on trade and transit between Russia and other successor states means that heavy water, beryllium, uranium oxide, and other controlled commodities can pass to the CIS point of least resistance and from there to countries of proliferation concern. This problem is likely to be compounded if a proposed "Common Customs Zone" for the CIS is actually implemented.

SOME POSITIVE DEVELOPMENTS

So far I have emphasized the negative side. There is a lot more I could do about this if time permitted, but there also are some promising developments. Belarus is poised to receive major U.S. export control assistance and Ukraine has made some important strides by creating a new export control structure no longer hostage to the Ministry of Conversion and the remnants of the old Soviet military industrial complex.

I initially planned to comment on the danger of nuclear mercinaries from the former Soviet Union. Rather than make those remarks orally, I refer you to my prepared testimony.

Let me simply note that we face a problem in the nuclear complex of the former Soviet Union that is apparent in recent strikes and greatly increased job turnover figures. There is a substantial migration of the nuclear work force, most of it involving younger people and much of it to the private sector. That has had the effect of complicating efforts to monitor nuclear scientists and raises doubts about lab spokesmen claims that no employees have sold their services abroad.

U.S. POLICY RESPONSES

Let me turn to the issue of appropriate U.S. policy responses. While there is little evidence that militarily significant nuclear exports from the newly independent states have taken place, conditions there are ripe for export control abuse. Massive stocks of weapons grade materials, underemployed nuclear experts, unsafeguarded nuclear facilities, desperate demands for hard currency, and general governmental disinterest and disregard for the control of nuclear-related products require corrective action.

A number of useful recommendations have been made over the past year, although their implementation has been less than successful. Rather than enumerate those, I will turn to four additional things that I believe should be done.

U.S. leverage in nuclear negotiations with the Soviet successor states in the past has been undercut by repeated unfulfilled promises. To regain some measure of credibility, Washington must expeditiously use funds already allocated by Congress to reward nuclear export and nonproliferation restraint. As of last Friday, September 9, only $52 million—less than 7 percent of the $800 million authorized by the Nunn-Lugar legislation—had actually been expended. It is imperative now to stop interagency squabbles and to make money available immediately to Belarus to reward its nonproliferation restraint.

I believe that recent action by the U.S. Department of State and the Department of Energy are encouraging in this respect. Indeed an export control short course is being conducted in Minsk this week.

Money also could be profitably used to establish a longer term model export control training center in Minsk. The center could accommodate trainees from throughout the former Soviet Union and might serve the additional nonproliferation purpose of stemming the potential brain drain by retraining scientists from the nuclear weapons establishment in the related field of nuclear export control and safeguard procedures.

Means also must be found now to provide Ukraine with assistance in the area of export controls and nuclear safety. U.S. policy which links provision of this assistance to conclusion of the so-called umbrella agreement no longer makes sense, and indeed undermines the positions of the few organizational actors in Ukraine which support nonproliferation restraint. Timely provision of material assistance to organizations such as the Expert-Technical Committee and the State Committee for Nuclear and Radiation Safety, on the other hand, may enhance their bureaucratic influence while lessening the risk of nuclear reactor mishaps and export leakage.

The focus of efforts to shore up the difficult situation in Ukraine should not lead us to ignore the nuclear export and nonproliferation problems in Kazakhstan, Russia and the other successor states. Significant anti-NPT sentiment and an inclination to export anything to anyone for the right price is present, if less visible, in Kazakhstan. Moreover, support for the NPT could wane in Russia if Ukraine disavows its NPT pledge.

The presence on the territories of Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan of a variety of nuclear materials, equipment, technology and technical expertise is not reason for great anxiety over indigenous nuclear weapons programs in Central Asia. However, there are growing economic incentives in the region to sell sensitive products abroad.

It therefore would be desirable for the United States to apply a portion of the funds earmarked for denuclearization and export control assistance to successor states other than the big four. I have in mind, in particular, assistance for Kyrgyzstan and Uzbekistan.

Estonia, Kazakhstan, Ukraine and other nuclear successor states with nuclear export capabilities should be encouraged immediately to join the Nuclear Suppliers Group. At a minimum they should be invited to participate as observers at Nuclear Suppliers Group meetings. The engagement of these states in the international ex-

port control process is important not only as a means to share technical information and secure policy commitments, but as a vehicle to create internal institutional mechanisms within the governments with responsibility for nuclear export controls.

THE U.S. MUST EXERCISE RESTRAINT IN DUAL-USE EXPORTS

Finally, let me argue that U.S. efforts to encourage nuclear export restraint in the states of the former Soviet Union are undermined by the perception that Washington does not practice what it preaches. The litmus test for the Clinton administration's commitment to nonproliferation will be its own self-restraint in dual-use exports, the consistency with which it applies nonproliferation standards, and, from the viewpoint of officials in Moscow, Kiev and other foreign capitals, the extent to which it is prepared to forgo nuclear testing and reduce its own nuclear arsenals.

To date the international community has been fortunate to avoid a flood of illicit nuclear exports from the former Soviet Union. But this luck is unlikely to continue indefinitely. Unless steps are taken promptly to enhance the capability of the newly independent states to control nuclear exports and to alter the balance of incentives and disincentives to export sensitive nuclear goods and services the next sensationalist headline about black market nuclear activity may well turn out to be true.

Thank you.

[The prepared statement of Mr. Potter appears in the appendix.]

Mr. LANTOS. Thank you very much, Mr. Potter.

I know you need to leave. Thank you for a very substantive and meaningful testimony this afternoon.

Next we will hear from Stephen D. Bryen, President of Deltatech, and former Deputy Undersecretary of Defense for Trade Security Policy. Your prepared statement will be entered in the record in its entirety. You may proceed in any way you choose.

STATEMENT OF STEPHEN D. BRYEN, PRESIDENT, DELTATECH, AND FORMER DEPUTY UNDERSECRETARY OF DEFENSE FOR TRADE SECURITY POLICY

Mr. BRYEN. Thank you, Mr. Chairman.

Given the lateness of the hour, I would like to come directly to the point if I can. I was very impressed with your opening remarks—depressed and impressed. Depressed because it is deja vu. I have seen this happen before, certainly with respect to Iraq in the late 1980's and before the invasion of Kuwait.

I don't think what is going on today is very much different than that, despite the fact that a great deal of effort has been made by the State Department and other agencies of the U.S. Government, domestically and internationally, to try and do something about the problem of proliferation.

There is a difference between what we call dual-use technology on the one hand and specific military types of goods like enriched uranium on the other hand which could be smuggled out of the former Soviet Union or supplied from other countries, from China, for example.

I think that is a real threat; but you still need to have the delivery systems and the mechanisms to use even the uranium that you

might steal. The pattern that occurred in Iraq is now occurring in Iran and elsewhere, in some cases with the same companies. And that is to acquire, largely from the West, dual-use industrial machinery, machine tools, special kinds of furnaces, all kinds of devices to build the weapons and the delivery systems for those weapons. And that is what the concern is. That is the risk, that is the risk to our security and it certainly poses a regional risk as well.

The question is how to get at that problem. I don't pretend to know the whole answer, but I think I have a few ideas that might be useful to this committee in its consideration of how to proceed.

PRIOR APPROVAL IS A KEY TO ANY MULTILATERAL EXPORT LICENSING SYSTEM

I think the greatest single weakness in today's system of technology controls is the true lack of international coordination. The old COCOM system which was created in 1949 and became the means through which Western NATO countries controlled technology to the Soviet Union and its Warsaw Pact allies had one special feature that is not found in any other control regime missile tech or chemical weapons control regime. In COCOM important export licenses had to be looked at by each member country. Each had to bring its proposed export to the full group of 16 countries get their approval, their positive approval.

That single thing was the reason why it was possible to coordinate and manage an export control program that had some chance to succeed. You don't have that with respect to proliferation. Each country is completely on its own. The United States does what it does, the British and Germans do what they do, and everybody does a lousy job, and that is the bottom line.

You have published a list today of companies and their activities that you know about. I submit that there are probably thousands of activities you don't yet know about and you will read about tomorrow and the next day and the next day. Or God forbid if there is another conflict, say in the Persian Gulf, the U.N. will go in there and clean up the mess and you will see that junk lying around after we bombed it.

There must be a better way. I think our political leadership instead of just making speeches about proliferation, will have to get our allies to the proposition that we should agree on a system of control that has some chance to succeed, where we coordinate licenses, where we reveal what we are going to do and get the consensus of the others.

If the consensus is that it is risk free and there is no danger, I think we have to accept that. But if the consensus is that there is a problem or that it shouldn't go, the export has to be held back. That means leadership on the U.S. side. Leadership is sometimes easy to come by, sometimes hard to come by, but it is not just come by through speeches. We have to do the job and clean up our act. We can't go on approving cruise missile technology to China and at the same time complain about the Chinese selling missiles to Pakistan and then imposing a unilateral punishment which will be broken immediately by our allies because they are not obliged to follow it.

This sends the wrong message to everyone. It sends a message to the Chinese that we are not very serious about the missile tech violations. It sends the same message to our allies and it encourages other companies to sell whatever they have to sell with very little fear that there is any particular risk. So I think coordination and the political effort by the United States cleaning up our own process here are two very important steps.

In my prepared remarks I go into one other aspect. When we had an Export Control program operating effectively, I think as effectively as it could with respect to the Soviet Union, we also had a defense program that was operating effectively. A control scheme no matter how good it is won't ultimately be enough. You have to have some way of challenging anyone who would acquire and threaten to use weapons of mass destruction.

I think we did it, by the way, with respect to Iraq, but not without some difficulty. We found in that example that we had to make do with partial solutions, had to use systems that were not exactly appropriate, the Patriot being a good example. Our troops weren't fully prepared. Even at the last minute we were ordering chemical weapons antidotes from even manufacturers in Maryland to be shipped out in a hurry so the guys would have something to protect themselves with. That is not the right way to do business.

A CONCENTRATED COUNTERPROLIFERATION EFFORT

We need a concentrated counterproliferation effort in our defense programs, and real focus on it, and I think it should be a separate part of the defense budget and a separate focus with separate leadership to look into it and make sure that we have a comprehensive program and make sure those who want to acquire these weapons know we do, because there is a real benefit to being able to threaten proliferations if they get out of line.

I consider the risk of proliferation real. You only have to look at the example of what was going on in Iraq to understand it is real. We were happily a year or two ahead of Saddam Hussein's successful completion of his nuclear program. We were lucky that he blundered.

A few years later and the invasion of Kuwait might have looked very different had he been a nuclear power by then. Whether we would be willing or could have taken that sort of risk, I don't want to speculate. But we do need to have an effective, comprehensive, counterproliferation program that includes a good, solid, defense program aimed in that direction.

There are three main points: we need a coordinated export control system that includes coordination of licenses with our allies. We need political effort to clean up the problem at home and set an example. And finally, we need a focus on our defense programs that includes a real counterproliferation effort for our national security. That is the burden of what I have to say and thank you.

Mr. LANTOS. Thank you.

[The prepared statement of Mr. Bryen appears in the appendix.]

We will now hear from Joseph Bermudez, Jr., a leading specialist in the field of ballistic missile proliferation.

STATEMENT OF JOSEPH S. BERMUDEZ, JR., SPECIALIST IN BALLISTIC MISSILE PROLIFERATION

Mr. BERMUDEZ. Thank you, Mr. Chairman.

First I would like to thank you for allowing me this opportunity and I would like to apologize ahead of time because I have never been good at oral presentations. The nuns in grammar school will testify to that.

North Korea and China are by far the most significant proliferators of ballistic missiles today. Up until the mid-1980's, the Soviet Union was the major supplier of ballistic missiles to the Middle East with its ubiquitous Scud B.

During the next few minutes, I will discuss both China's programs and their efforts and North Korea's. China became an important source of ballistic missile technology for proliferating countries during the 1980's. It is an attractive supplier both because of its extensive technology base in ballistic missiles and because it is willing to sell.

China has sought foreign military sales for several reasons, profit, political influence and significantly to subsidize development of ballistic missiles within its country for its own use. Currently China deploys several ballistic missile systems, including the 2,800 kilometer range DF–3, the 4,700-kilometer DF–4 and the 12,000–13,000-kilometer DF–5. Currently China is pursuing work on a number of more modern more sophisticated systems or capable systems, notably the DF–25, DF–31, and DF–41.

These systems are scheduled to come on line in the mid-1990's through the late 1990's. To date China is known to have provided intermediate range ballistic missiles or technologies to only one country, Saudi Arabia. During 1985, a major arms agreement was concluded between Saudi Arabia and China and deliveries of the missiles were begun in 1987.

Saudi Arabia has never employed its DF–3's. The missiles however were placed on operational alert during Operation Desert Storm. Additionally, Saudi Arabia has not retransferred any DF–3 missiles or technologies.

Following the public revelations of the sales which occurred some time during 1987–1988, Libya approached China seeking DF–3's but fortunately for us the negotiations were not successful. In addition to these longer-range systems, China has sold or is marketing three shorter-range systems, the 600-kilometer M–9, the 300-kilometer M–11 and the 300-kilometer 8610.

To date, China is known to have transferred short-range ballistic missiles and manufacturing technologies to a number of countries in the Third World. Iran has received the 8610 missile and manufacturing technology, the M–9 and the M–11 manufacturing technologies as well as technical assistance, which it needs desperately for its missile programs and its rocket artillery programs.

Libya has negotiated for M–9 missiles and manufacturing technologies as well as Chinese technical assistance for their indigenous program. At present, however there are no reliable open source indicators of any significant Chinese involvement in Libya.

Pakistan has concluded a agreement with China to purchase both M–9 and M–11 missiles and technologies. The status of these present agreements is unknown. Pakistan is however known to be

covertly receiving manufacturing technologies and components from China.

Syria originally had concluded an agreement with China also for both M–9 missiles and for manufacturing technologies. However, due to international pressure especially from the United States, both the M–9 missiles and manufacturing technologies were withheld from Syria. They were, unfortunately, replaced by a series of programs which actually circumvented it.

These agreements called for North Korea to provide Syria with Scud Mod-C missiles and manufacturing technology, Iranian cooperation and technical assistance for Syria and Chinese technical assistance. So the Chinese were able to get around the letter of the law and the Syrians were able to get their missiles.

NORTH KOREAN MISSILE DEVELOPMENT

A few comments about North Korea's missile program. North Korea's involvement in the field of ballistic missile dates to the mid-seventies. However, it wasn't until later that it was able to overcome serious shortcomings in manpower and technology to produce its first ballistic missile, known as the Scud Mod-B. This system is a reverse engineered version of the Soviet Scud B.

The pattern examples for the new missile were provided by Egypt in the early 1980's. Thus North Korea's missile program can be said to owe its original success to the Middle East. As I read the rest of the North Korean section, I apologize for the confusion that might arise because of the terminology used for the missiles, but there is no other way to get around it.

North Korea's program accelerated dramatically around 1985 when as a result of the Iran-Iraq war, the Iranian Government agreed to provide North Korea with funding for its missile program in return for the purchase of the soon-to-be produced Scud Mod-B.

Due to a number of minor modifications in the production process, the North Korean version is able to deliver a warhead slightly further than the standard Soviet version. Its 320-kilometer range is slightly greater than the 280. During July 1987, the first North Korean-produced Scud Mod-B's arrived in Iran. These missiles were subsequently to play a significant role within the War of the Cities.

During that battle, the Iranians launched approximately 80 of the 100 or so provided by the North Koreans. Concurrent with the delivery of the missiles and the War of the Cities, North Korea provided assistance to Iran in establishing a facility to assemble the Scud Mod-B within Iran. During the late 1980's, North Korea reorganized its missile program to produce two new systems with greater capabilities, the 500-kilometer range Scud Mod-C and the 1000-kilometer, 13,000-kilometer Scud Mod-D commonly known in the press as the Nodong or the Nodong 1.

The Scud Mod-C is an extended range variant of the original Scud, while the D is believed to be a completely redesigned system that is based upon Scud technology.

During the late nineties, the Scud Mod-C entered production and North Korea agreed to sell the new missile to Iran and to assist in its conversion of a facility to first assemble it and then produce it within Iran. Shipments began to Iran some time in January

1991. The exact number of missiles provided directly to the Iranians is not presently known, however estimates suggest around 100, maybe 150.

The Iranian deliveries were soon followed by a series of interrelated agreements to provide the Scud Mod-C's to Syria. Deliveries of an estimated 60 missiles and 12 launcher to Syria began during April 1991. Additionally, Libya has displayed an interest in purchasing the North Korean Scud Mod-C, but there is no evidence that North Korea has shipped any of these missiles to Libya.

Design of the longer-range Scud Mod-D is believed to have begun in 1989 and proceeded at a much slower pace. The first prototypes are believed to have been completed earlier this year and were recently tested for the first time during May. The range of the new system is probably 1000 to 1300 kilometers. We often hear the figure of 1000 plus, but it is closer to 1300, best estimate, which gives the North Koreans the ability not only to strike anywhere within the Korean peninsula, but they will be able to hit Tokyo, and Osaka, Japan Khabarovsk in Russia, Beijing and Shanghai in China, and Taipei in the Republic of China, a pretty long reach for a very small country.

There is considerable international concern over the Scud Mod-D. Iran, Libya and Syria have all displayed an interest in obtaining the missile or the technology to produce it. Iran, however, appears to be the chief client, having sent a delegation to witness the recent tests. Deployment of the Scud Mod-D by Iran would allow it to strike all of our main allies in the region.

NODONG 2

Some sources suggest that North Korea is developing a 1500- to 2000-kilometer follow-on to the Scud Mod-D logically called the Scud Mod-E or in the press Scud X or Nodong 2.

If this is correct, this system is most likely only to be in the design stage at present, will not be seen in prototype stage until 1995 or after. One of the primary reasons for the long development period with North Korea's extended range missiles is that in order to achieve ranges on the order of 1500 to 2000 kilometers using Scud technology you need to use clustering or multistaging, both technologies that the North Koreans have limited or no experience in.

The recent incident in which a number of Russian designers were stopped from traveling to North Korea is noteworthy. The personnel that were stopped were from the Makeyev Design Bureau which was responsible for Scud design and Scud improvements within the Soviet Union. These people had the technology and capability to address North Korea's shortcomings in clustering and multistaging.

Before concluding, please allow me to comment on export controls. The effectiveness of export controls in containing ballistic missile proliferation within the Third World is somewhat problematic. It is clear that these controls presently have not stopped proliferation.

It would be a mistake however to assume that these controls are totally ineffective. The crux of the problem is that as long as nations perceive the need for ballistic missiles they will seek to purchase or produce them. We should remember that the technology

to produce the Scud is based on 50-year-old technology on the German World War II V-2 weapons. This technology is available to everyone. It is certainly available to countries like North Korea.

We know however that many countries including North Korea are pursuing programs which require greater technology which is not as accessible. Our experience with the multinational Condor program has shown that such programs are much more vulnerable to external constraints. The fact that we cannot stop proliferation doesn't mean that we shouldn't try or that we can ignore the issue.

It is better to have a number of nations with short range crude unreliable systems than the same nations to have long range, accurate and reliable systems, the lesser of two evils. It is clear that the threat of ballistic missile proliferation in the Third World is real. The dangers to the United States and its interests are increasing. This threat must be met in a forthright intelligent and creative manner.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Bermudez appears in the appendix.]

Mr. BEREUTER. Mr. Chairman, I wonder if Mr. Bermudez could tell us in general terms about the source of your information?

Mr. BERMUDEZ. In general terms, I had an opportunity to speak with many people, both within this government and other governments both in intelligence agencies and diplomatic arenas, plus I have been studying the problem for close to 15 years.

Mr. BEREUTER. Thank you.

Mr. BERMUDEZ. If you have a question about a specific item, I will be glad to discuss it in private.

Mr. LANTOS. Very good.

Our final witness is Mr. Ramon Marks, Sr., partner of Marks & Murase and a specialist in this field. We are happy to hear from Mr. Marks. Your prepared statement will be entered in the record in its entirety. You may proceed in any way you choose.

STATEMENT OF RAMON P. MARKS, ESQ., SENIOR PARTNER, MARKS AND MURASE

Mr. MARKS. Thank you, Mr. Chairman.

I will make general comments based on my testimony at the hearing today. You have asked me to comment on the effectiveness of sanctions laws as a tool for encouraging multilateralism on proliferation efforts. I think there is a great deal of confusion over the role. A case in point is the administration's recent actions against China under the Missile Tech Control Regime involving the shipment of M–11 technology to Pakistan.

These sanctions were invoked pursuant to section 11 B of the Export Administration Act and will probably result in the loss of $1 billion worth of business for Hughes Aircraft. That is $1 billion worth of jobs for Americans and for the American economy.

What I would like to point out to the chairman and to the subcommittee today is the fact that Aerospatiale, British Airspace and Alcatel are perfectly capable of selling that technology to the Chinese. It is only reasonable to assume that they probably will unless a miracle occurs and the State Department is successful in arm

twisting tactics with our colleagues. My point is that these are not sanctions directed against China.

These are sanctions directed against Hughes Aircraft and the U.S. economy unless we can somehow keep foreign companies from jumping into the breach and taking the opportunity.

Another example is the administration's recent decision with regard to Boeing. Again I understand that at the strong insistence of the State Department it was decided that Boeing should not sell aircraft to Iran. That may well be an excellent decision.

The problem is, as we speak, Airbus is busily taking out U.S. technology from its aircraft to try to craft airplanes that they can then sell to the Iranians without any U.S. technology. If Airbus gets the deal and Boeing doesn't, Mr. Chairman, my question is who has been sanctioned, Iran or Boeing?

I do believe that this is a significant policy problem. It deserves scrutiny by your subcommittee, Mr. Chairman, and I think U.S. business is right; why should they exercise forbearance if others don't?

The real challenge is how to make any proliferation policy on export controls and sanctions truly multilateral. I believe there is a potential legislative solution to this problem, Mr. Chairman, based on my own experience as a lawyer practicing in this area.

THE NEED FOR IMPORT SANCTIONS

We have only to look at a very obscure provision of current U.S. export control laws to see the potential seeds of a new concept that could put real teeth into the ideas of multilateralism. You will recall that back in 1987 the strong sanctions were voted by the Congress. They had a very dramatic effect.

I think the other countries now have better export control programs, in large measure, I think, thanks to the initiative of Congress in passing that legislation, which got attention. Along with those sanctions provisions, there was a little noticed law that came along with it, section 11(a). It provided that any future COCOM export control diversions by foreign persons could be subject to sanctions.

In other words, if any foreign company violated, in the judgment of the U.S. Government, COCOM-based export controls, then the U.S. Government could institute sanctions blocking exports into the United States for up to 5 years.

Mr. Chairman, I would submit that it might be an excellent idea to consider, as part of an improved the counterproliferation program, new legislation along these lines, that expands beyond COCOM. Why not make such applicable to NPT, to Missile Tech, to Australia Group, to all of the multilateral control regimes? This would go against the idea that we are behaving unilaterally.

We would only make these potential import sanctions applicable under multilateral agreements.

Let me turn back to the examples at the start of my testimony, Mr. Chairman. We decide we have just got to do something about China and these M–11 shipments. We tell Hughes you lose $1 billion worth of business. Let's assume an European company jumps in and grabs the $1 billion worth of business.

You hold hearings, you inveigh on the State Department to arm twist, please do something about it. But before that your committee and the Congress and the President had signed legislation allowing for import sanctions. Well, under that law, if the European company sold the technology to the Chinese that we blocked Hughes from doing, Hughes would have the right to come in and the U.S. Government would have the right to come in and say that company loses its right to sell its products in the United States for a period of time.

Whether it is 2 years, 5 years, 6 months, I submit that the very shock value, the deterrent value of having that type of legislation on the books could dramatically change the picture and I think we would have a perfect right to make that argument. If we told Hughes they can't sell, if we are engaging in sales sacrifice under a multilateral regime, why should we then feel uncomfortable about telling a foreign company you may lose your right to do business in this country for awhile.

We have the right to restrict exports out of this country.

Mr. Chairman, the Congress and the President under the Constitution, have the right to restrict imports into the country as well. I think it can be a two-way street. There is nothing unfair about that.

Mr. Chairman, let me move on. You also asked me to comment today on existing policy tools for preventing proliferation of weapons of mass destruction. On this score, I would like to focus on one law in particular with which, because of my practice, I have had to deal extensively and that is the Iran-Iraq Arms Proliferation Act of 1992.

I was very interested to hear your opening statement, Mr. Chairman. Let me say that from a legal point of view your comments concerning the question of whether that law has been properly enforced by our Government were right on point. As an attorney, I would tell you that in my opinion we are not enforcing that law.

We have permitted unlawful exports to Iran to occur and I will explain to you in lawyer's terms, in technical terms precisely why I have arrived at that conclusion. Specifically, section 1603 of the Iran-Iraq Act expressly requires that all export controls prescribed against Iraq under the Iraq Sanctions Act of 1990, and I am quoting now Mr. Chairman, "shall be applied to the same extent and in the same manner with respect to Iran."

Mr. Chairman, we all remember we took strong action against Iraq; strong action. We decided that all dual-use technology based either on foreign policy or national security controls cannot go to Iraq.

U.S. EXPORTS TO IRAN WERE ILLEGAL

The Congress passed this law, Mr. Chairman. It was signed into law by the President of the United States on October 23, 1992, as you said.

Since that time, numerous exports, millions of dollars of exports, have been licensed by our Government of items that are on the commodity control list as foreign policy or national security controls, and they have been allowed to go to Iran.

The subcommittee asked me to review a list, indicating the possibility that G-Dest items have been licensed for Iran.

Mr. Chairman, almost everything on the commodity control list ends up there in theory based on controls. The statutory language is clear. I argue cases in the court all the time. I would be perfectly comfortable arguing to a U.S. Federal district judge that those exports were not legal in light of the statutory language.

Let me add, Mr. Chairman, one other point. I understand that the Commerce Department follows a contract sanctity policy. They include language, a savings clause saying that any contracts passed before the effective date of the law can go ahead and be licensed. And my understanding is Commerce has done this. In fact, I underlined your testimony. You indicate that approximately $11.6 million worth of such exports have been licensed to Iran.

Mr. Chairman, the Iran-Iraq Act contains no contract sanctity provision. Mr. Chairman, the parallel statute, the Iraq Sanctions Act of 1990, on which it is closely patterned and based, does contain such a contract sanctity provision.

Mr. Chairman, under the standard rules of statutory construction that lawyers follow, if one statute has a contract sanctity provision, then if this Congress has intended to allow contract sanctity with respect to exports to Iran, it would have included similar language in the Iran-Iraq Act. It didn't.

So I have serious questions. And, frankly, I find the situation in the wake of Iraqgate, as we came to call it, somewhat surprising. We have a situation today with Iran that is chillingly similar to what we faced with regard to Iraq several months before the Gulf War. We have Iranian troops massed on the Azerbaijani-Iranian frontier. Even worse we have the allied NATO troops massed on the Turkish frontier. We have a government that has been licensing exports to Iran. But this time the situation may be even stronger than it was with Iraq. At least to me it appears those licenses have been in direct contravention of U.S. export laws.

Imagine the outcry, and imagine the furor that is going to erupt, Mr. Chairman, if the worst case occurs and fighting start involving a NATO ally, Iran and a former Soviet Republic.

Imagine the recriminations that are going to occur, the press coverage, the hearings that are going to occur in Congress, and the speeches on the floor about our Iranian export policy, and what about this law that we passed to try to learn the lessons of Iraq and apply them to Iran.

Mr. Chairman, I am no fan of unilateral controls. I am no fan of United States blocking exports to Iran when our allies do not, but we want to block exports to Iran, then let's pass some legislation that can slam the door on the Europeans or whoever else tries to jump in and take advantage of our forbearance.

And at the same time, I think we need to do something. There are some loopholes in the Iran-Iraq Act. The biggest loophole is the failure to enforce the law.

Thank you. Those conclude my remarks.

[The prepared statement of Mr. Marks appears in the appendix.]

Mr. LANTOS. Thank you to all three of you, and I would like do begin with Congressman Bereuter.

Mr. BEREUTER. I think the testimony was very interesting and very disturbing. I regret that I am not going to have the opportunity to stay around and pursue the questions, but I particularly appreciated your remarks, Mr. Marks. They were very specific about the areas of law that you think are being violated.

Is that a part of your written statement as well?

Mr. MARKS. Yes, it is sir. It is in the full written statement, and I lay it out in legal terms in my prepared written remarks.

Mr. BEREUTER. Thank you, Mr. Chairman. I defer to you.

Mr. LANTOS. Mr. Marks, your testimony is very provocative. Are you suggesting that the breaking of the law is currently going on on the tenure of Ron Brown as Secretary of Commerce?

Are these current developments, or are these developments of the period prior to January 20th?

Mr. MARKS. Mr. Chairman, I believe that this has been going on since the law was passed October 23, 1992. And for better or for worse, it is a bipartisan problem. It has been going on continuously out of that department since that time. I have seen no change in the trend.

Mr. LANTOS. You have seen no change in the trend?

Mr. MARKS. No, Mr. Chairman.

Mr. LANTOS. You have called elsewhere for American companies to be given private right of action. What are the arguments against this?

You made a very compelling case for this approach. What are the arguments against it?

Mr. MARKS. Mr. Chairman, now you are really asking me to behave like a lawyer and to abruptly change sides and argue against the position that I personally espouse.

Mr. LANTOS. Just part of your nature as a lawyer.

Mr. MARKS. I find it particularly objectionable since I wasn't warned what the questions were going to be.

I would say that the types of ideas that I am suggesting are—will create confusion. They will create controversy, they will create friction between ourselves and our allies. And I think that what the State Department tries to do is to address the problem smoothly through diplomatic conversations, negotiations. They will sit down at the Quai d'Orsay and say, come on, can't you do something about this, slow this up, stop this? Look at the attention that it is receiving in press.

And I think many would argue that is the better approach, that this sort of harsh statutory Congress ramming a law down the lines of Toshiba is ultimately harmful to foreign policy. And we would defer to the President's constitutional authority to run foreign affairs and to get the job done as God gives him the light to see that job.

And these statutory handcuffs are just going to cause trouble, and the Germans or the Belgians or the Dutch or the French are going to slam import controls on our products. More than likely it would be the Chinese, and they would impose import sanctions on us.

Mr. LANTOS. Do either of you have any comment on this issue?

Mr. Bermudez, in your judgment, does North Korea have a nuclear weapons capability at this time?

Mr. BERMUDEZ. Loaded question.

Mr. LANTOS. I think it is a very straightforward question.

Mr. BERMUDEZ. That is right. It has the capability, the technological capability to produce a bomb. In my opinion there is little doubt of that.

Whether it has enough fissile material in the form of plutonium is the question; and whether it has extracted that plutonium into one place, one batch, to be used and milled into weapons form is what is debatable.

The other side of the coin, which is very rarely discussed, is if North Korea has been pursuing an enriched uranium program as opposed to just a plutonium program, then it certainly could have enough enriched uranium to produce a bomb.

As far as building a bomb, there is little doubt that North Korea has the technological capability to do that. It might be crude or dirty by our standards, but it has the technological capability to do so. Whether it has the fissile material, we really don't know and the North Koreans aren't telling us.

Mr. LANTOS. Mr. Bryen, you have been working in this field for many years and you must have found as frustrating as I do that our allies refuse to embargo high-technology sales, say to Iran.

Having seen this in an official capacity and now in a private capacity, what suggestions would you have for our policymakers to deal with this? Because, clearly, most of them are aware and would like to deal with this.

Mr. BRYEN. I think they would like to deal with it. I don't have any doubt of the goodwill on the subject is there. I think it is a question of figuring out what is going to bring results.

CLEAN UP THE U.S. EXPORT LICENSING SYSTEM FIRST

We had the same problem in the early 1980's with the allies with respect to Soviet issues as we have in respect to Iran or other countries today.

What got their cooperation? I think, first of all, our determination to clean up our own export licensing system first. If they believe that we are just doing this for the front page of the newspaper and we are not serious, then it is unlikely that you will see Germany or France or England or anybody else really impose tough export controls on their customers, given their sensitivity about their economies and all the other political issues.

If, however, we set an example, we are going to be hard nosed about this and that we are going to tell them to be good allies, they will have to cooperate on this front. Then I think you will see a different result. I think that is the bottom line that you have to do it first ourselves.

I spoke in my testimony about China sanctions and about exports to China of cruise missile technology, supercomputers. If you are a European watching that, you are going to be awfully cynical the next time some American official comes around and asks you to restrain an export.

Mr. LANTOS. How advanced are the contacts between Libya and North Korea for ballistic missile sales?

Mr. BERMUDEZ. At present, we have—and I addressed it in my written statement—indications that the Libyans have had prob-

lems with their indigenous program and as a result approached North Korea initially for Scud Mod-Cs.

There is no evidence right now that the North Koreans have provided them with any missiles or technology. However, it appears that the Libyan thrust now is for the North Korean in their Scud Mod-D. The missile itself has just gone into testing in May.

The North Koreans launched four, of which only one landed where we expected it to land. The other three landed elsewhere. So the status of the missile itself is somewhat questionable. It is believed, at least at present, that Libya is trying to or is seeking to acquire this missile when it is produced.

Mr. LANTOS. What is our best estimate of how long it will be before Iran goes nuclear, given the present pace of their effort?

Mr. BERMUDEZ. If you are addressing that question to me——

Mr. LANTOS. I am addressing it to all of you.

Mr. BERMUDEZ. I would defer that question to Dr. Potter first.

Mr. BRYEN. Who has left. The growth in technology there is similar to Iraq. All the official estimates on Iraq were wrong. We know that now. Who is to say? Five, 10 years. In reality, it was a couple of years. They are probably in the same ballpark by now. A couple of years. If nothing is done, a couple of years.

Mr. LANTOS. I want to thank you again for enormously important and significant material that you have presented.

This hearing is adjourned.

[Whereupon, at 4:44 p.m., the subcommittee was adjourned.]

APPENDIX

Testimony By

Director of Central Intelligence

R. James Woolsey

To The

House Foreign Affairs Committee

Subcommittee on International Security, International Organizations, and Human Rights Subcommittee

Rayburn House Office Building

28 July, 1993; 10:00 a.m.

Mr. Chairman, members of the committee, I welcome the opportunity to speak with you this morning about proliferation of weapons of mass destruction -- nuclear, biological, and chemical weapons, and the missiles to deliver them. Few issues have more serious and far-reaching implications for global and regional security and stability than the spread of these weapons.

As you are aware, I testified on this subject in some detail to the Senate Governmental Affairs Committee in February of this year. Much of my statement from that hearing remains valid today and a full picture requires some repetition. There are a number of developments on which I can provide updates, however.

Before I begin, I would like to emphasize that although I believe speaking openly on the critical issue of the proliferation of weapons of mass destruction is important and useful, I must balance that objective with my responsibilities to protect sources and methods. So on many issues details would have to be provided in classified form.

I would like to begin by briefly outlining a few significant developments since my February testimony.

First, North Korea, which I identified earlier this year as our most urgent national security threat in East Asia, continues to be of great concern. I cannot go into much additional detail because of the ongoing discussions with the North Koreans.

North Korea's decision to suspend its withdrawal from the Nonproliferation Treaty (NPT) was certainly welcome, and we hope it portends a more cooperative attitude and greater willingness to submit to its commitments under the NPT. This includes cooperating with the IAEA to maintain inspections.

Clearly we are not out of the woods, and progress depends on North Korea's following through with productive discussions with the IAEA. I must stress that our assessment that the North Koreans could have produced enough plutonium for at least one nuclear weapon still applies, and thus this issue continues to require our closest attention.

When I testified last February, I described a new North Korean missile with a range of about 1,000 kilometers that was still in the developmental stage. I can now confirm that the North Koreans recently tested the missile, which in addition to conventional warheads, is capable of carrying nuclear, chemical, or biological payloads. Of greatest concern is North Korea's continued efforts to sell the missile abroad -- particularly to dangerous and potentially hostile countries such as Iran.

Deployment of this missile will provide an important increase in the capabilities of various countries to attack their neighbors. With this missile North Korea could reach Japan; Iran could reach Israel; and Libya could reach US bases and allied capitals in the Mediterranean region.

The situation in Iraq has also changed somewhat since I last spoke publicly. Upon his return from Iraq, Ambassador Rolf Ekeus, Chairman of the UN's Special Commission, announced that Iraq had agreed to the UN's demand to install cameras at a missile facility and, most importantly, to accede to long term monitoring under UN resolution 715. More details will become available in the coming weeks as UNSCOM formulates the UN response to Iraq's position and discusses the mechanics of long-term monitoring with the Iraqis. While Iraq's recent statements offer some promise, I am reminded that we have heard positive sounds from Iraq before, with little or no follow-through. It has been a long and frustrating two years, during which time Iraq has doggedly prevented the UN from implementing the Security Council's mandate. As with North Korea, we will have to measure Iraq's true intentions by its deeds rather than by its words.

Meanwhile, the UN continues its work in Iraq, dismantling prohibited programs for weapons of mass destruction. Iraq's harassment of inspectors has not deterred the UN from continuing to destroy a vast chemical munitions and agent stockpile, to dig out details about past activity, and to search for hidden missile, biological, and nuclear capabilities.

Iraq's programs for weapons of mass destruction were heavily damaged by coalition attacks during Desert Storm. Nearly two years of intrusive UN inspections and the

imposition of strict international sanctions have set back their efforts as well. Iraq has struggled to maintain important elements of each program, hoping to outwait the UN and to rebuild its infrastructure for weapons of mass destruction once inspections and sanctions cease. We will continue to support strongly the multilateral effort to implement all relevant UN resolutions. Neither we nor the UN have lost sight of the basic fact that critical elements of Iraq's programs remain hidden. Therefore, intrusive inspections remain an important element of any monitoring regime.

Another key area, and one that continues to be of great concern, is the dissolution of the Soviet Union and the resulting opportunities for proliferating countries to acquire sensitive technologies and material. This is a regular subject for media speculation. Sensational stories about sales of nuclear weapons, fissile material, and strategic missiles from the states of the Former Soviet Union are becoming commonplace. We continue to check out each one, but have not, to this point, detected the sale or transfer of significant nuclear material, nor the sale or transfer of the weapons themselves.

We also continue to receive reports of brain drain from the former Soviet Union. Delays in pay, deteriorating working conditions, and uncertain futures are apparently spurring Russian specialists to seek emigration despite official restrictions on such travel. We also treat each of these reports seriously and attempt to determine the veracity of each.

We continue to be concerned with a number of agreements under consideration by the Russian Government that involve transferring technology -- particularly several being negotiated with Iran for nuclear-related technology and reactors. Given Iran's ambitions to develop nuclear weapons, we must assume that any assistance to Tehran in the nuclear arena could assist their development of a nuclear weapons capability.

Indeed, our concerns about Iran's intentions to dominate the region, its potential threat to US interests and allies in the Middle East, and its military build-up, have not diminished since I last spoke on this subject. Iran still poses a potential threat to its smaller neighbors and to the free flow of oil through the Gulf. It continues to support terrorism as an instrument of state policy.

And Iran's ambitious effort to develop its military and defense sectors includes a serious, determined program to

develop all categories of weapons of mass destruction. Unable to obtain what it wants from the West, Iran has increasingly looked to Asian sources for aid -- to North Korea for long range Scuds and now the 1,000 kilometer range missiles, and to China for a variety of other dangerous technologies.

Iran's nuclear weapons program remains at a relatively rudimentary stage. We continue to believe that Iran probably will take at least eight to ten years to build its own nuclear weapons, and progress will depend on foreign assistance. Knowing Iran's hostile intentions, any requests for potentially sensitive technology or material must be viewed with great suspicion, even when it is claimed that such material is destined for legitimate civilian uses.

Now I would like to briefly present a general overview of the proliferation problems we face. A growing number of countries are seeking advanced weapons, including nuclear, chemical, and biological weapons, as well as missiles to deliver them. As international awareness of the problem grows, these countries are becoming increasingly clever in devising networks of front companies and suppliers to frustrate export controls and to buy what would otherwise be prohibited to them.

The challenge we face in controlling proliferation is complex and multifaceted. We must decipher an intricate web of suppliers, middlemen, and end users. We must distinguish between legitimate and illicit purposes, particularly for dual use technology. And we must help interdict the flow of material, technology, and know-how to potential proliferating countries.

We do not expect any nations beyond Russia and China to bring together the requisite materials, technologies, facilities, or expertise to develop and produce ICBMs capable of striking the United States during this decade. Several nations with space launch capabilities could modify those launchers to acquire a long-range ballistic missile, but we do not expect any nation now having space launch vehicles -- India, Israel, and Japan -- to do so.

After the turn of the century, however, some nations that are hostile to the US may be able to develop indigenously ballistic missiles that could threaten the US. We also remain concerned that hostile nations will try to purchase from other states ballistic missiles capable of striking the United States. A shortcut approach--prohibited by the Missile Technology Control Regime and Nuclear Proliferation Treaty--would be to buy ICBM components

covertly, together with suitable nuclear warheads or fissile materials. The acquisition of key production technologies and technical expertise would speed up ICBM development.

Meanwhile, the threat from theater ballistic missiles is current, real, and growing. For decades now, the international community has worked from the premise that the more countries that possess these weapons, the greater the likelihood they will be used.

Just a brief overview of proliferation concerns around the globe underscores the threat posed to the US, to our interests abroad to our friends and allies. This overview will also underscore the importance of stemming this trend.

More than 25 countries, many of them hostile to the US and our friends and allies, may now have or be developing nuclear, biological, and chemical weapons, and the means to deliver them.

- Aside from the five declared nuclear powers, several countries have, or are developing nuclear weapons capabilities. Iraq and Iran, for example, have the basic technology to eventually develop such weapons.

- More than two dozen countries have programs to do research on or develop chemical weapons, and a number have stockpiled such weapons, including Libya, Iran, and Iraq. The military competition in the always volatile Middle East has spurred others in the region to pursue chemical weapons. We have also noted a disturbing pattern of biological weapons development following closely on the heels of the development of chemical weapons.

- More than a dozen countries have operational ballistic missiles, and more have programs in place to develop them. North Korea has sold Syria and Iran extended range Scud Cs, and has apparently agreed to sell missiles to Libya. Egypt and Israel are developing and producing missiles, and several Persian Gulf states have purchased whole systems as well as production technology from China and North Korea. Some have equipped these missiles with weapons of mass destruction, and others are striving to do so.

So far, I have addressed the dangers of nations acquiring or developing weapons of mass destruction, but we must also anticipate the possibility that hostile groups, specifically terrorist groups, might acquire these weapons with or without state sponsors. Certainly the bombing of the World Trade Center in New York last February has heightened

our sensitivity to the prospect that a terrorist incident could involve weapons of mass destruction. I would like to stress that we have no evidence that terrorists currently are developing or attempting to acquire such weapons. The extreme risk and complexity of handling these weapons suggest that they would not necessarily be the terrorist weapon of choice.

Nuclear weapons would be especially difficult for a terrorist organization to develop, acquire, or use. Terrorists would need a considerable amount of sophistication to transport and activate these weapons. Chemical and biological weapons, on the other hand, have always proven to be more accessible because the materials are cheaper, more readily available, and have more dual-use functions. Consequently, the acquisition of components to produce chemical and biological weapons is more difficult to track and counter even though the export of certain key materials are restricted.

While we have no evidence of any weapons of mass destruction in the hands of terrorists, we must remain alert to the possibility that such groups might acquire them. The enormous destructive power that could be wrought by a small, but hostile element beyond the reach of a central government compels our attention.

Let me now briefly describe some of the causes of proliferation and outline some of the most dangerous proliferation threats.

Nations continue to seek these weapons for a wide variety of reasons. Most nations perceive real benefits from the destructive power these weapons represent to their national security. Others value them for the prestige that leaders believe they convey, while some seek them to dominate their neighbors. A few countries, such as Iraq, develop these weapons not just for symbolic reasons, but to actually use -- against their enemies in war or, tragically, on their own people. Others think that the only way to offset a hostile neighbor's threatening weapons is to develop similar capabilities. We can see this particularly in South Asia, where mutual Indian and Pakistani suspicions have fueled a nuclear arms race, increased the risk of conflict, and gravely increased the cost of war if it occurs. Still others view these weapons as a way to buy security on the cheap, a shortcut to achieving a military capability that they believe will serve as a compelling psychological deterrent.

Russia's ability to maintain control of its special weapons and associated technologies has somewhat weakened

under the stresses and strains of the Soviet breakup. Today's faltering CIS economy and the attendant hardships among individuals with military and scientific expertise could lead to more disturbing military transfers and could also encourage illegal exports of technology or material. Tens of thousands of former Soviet scientists were involved in sensitive weapons programs; many may be tempted by more lucrative work abroad. The current emigration and customs bureaucracies cannot monitor more than the most critical personnel.

Since I last testified, the news on export controls in Russia and other former Soviet states has been mixed. President Yel'tsin apparently is trying to tighten controls on strategic materials, but at the same time economic pressures are prompting other Russian officials to oppose implementing more rigid export regulations. These economic nationalist pressures are causing some Russian and Ukrainian officials to question the wisdom of adhering to the Missile Technology Control Regime (MTCR). In a recent arms show in Moscow, the Russians advertised a derivative of the old SS-23 for sale as a civilian rocket, raising additional MTCR concerns. Moreover, at an arms show in Abu Dhabi earlier this year, the Russians advertised an improved warhead for the Scud -- an unwelcome development indeed, given the already widespread proliferation of this missile.

Resolving the dispute over control of strategic forces in Ukraine remains critical to establishing a more stable security environment. We face a critical period as Russia attempts to maintain control over all of the some 27,000 tactical and strategic nuclear warheads within the former Soviet Union, in the face of political difficulties, violence on its borders, and the possibility of disruptions within Russia itself. Although to date we believe that all of the tactical warheads have been returned to Russia, nearly 3,000 strategic warheads remain outside Russia.

The Russians continue to maintain strong centralized control of their nuclear forces, and we think that under current circumstances there is little prospect of a failure of control. But we are concerned about the future. Leaders in Russia and the other three states where the warheads are located have pledged to destroy much of the former Soviet stockpile, but it will take more than 10 years to do so unless the process can be speeded up.

The former Soviet Union is by no means the only source for countries seeking sensitive technology and materials for weapons of mass destruction. For every shipment we stop from other countries, new suppliers seem to appear, willing to

manufacture, broker, sell, and transport material to any and all clients, no matter how dangerous or unsavory. And while we have witnessed progress on controlling the supply side of the equation, we detect little reduction in the demand for weapons of mass destruction. As long as nations perceive these weapons as enhancing their security, and others are willing to sell, we will all have our work cut out for us. Nations that seek these weapons, such as Iran, Iraq, and North Korea, aren't going to give up because we reorganize or because we claim that we are more effective.

Mr. Chairman, several other problem areas are also of concern and worth mentioning. Libya continues to try to import technologies for its missile programs, and certainly no one has forgotten Colonel Qhaddafi's public statement about his quest for a nuclear bomb.

Even as it publicly proclaims its good intentions, Libya is constructing a second chemical weapons production facility. The new facility recently described in the media is yet another indicator of the extent to which Libya--apparently unchastened--will go to evade international attempts to prevent its development of chemical weapons.

Fortunately, the UN sanctions imposed in the aftermath of the Pan Am 103 incident are assisting nonproliferation efforts. Earlier this year, the UN sanctions committee blocked a shipment of chemical reactors destined for Libya, recognizing officially for the first time that Libya has an offensive chemical weapons program. The UN found that the dual-use equipment was destined for a military program and thus was prohibited under UN sanctions. Libya also continues its efforts to develop a ballistic missile capability, and to this end is scouring the West for technology and assistance. Only strict scrutiny and constant attention has prevented them from acquiring what they need.

The arms race between India and Pakistan poses perhaps the most probable prospect for future use of weapons of mass destruction, including nuclear weapons. Both nations have nuclear weapons development programs and could, on short notice, assemble nuclear weapons. Neither India nor Pakistan seems to scrimp on resources for their expensive military programs, despite their economic conditions and widespread poverty among their citizens. India's program, older and probably larger than Pakistan's, culminated in 1974 with a nuclear detonation, and we are convinced has progressed from there.

A nuclear exchange on the subcontinent would be devastating. Millions of innocent civilians in this densely

populated region would be vulnerable, particularly as each side strives to develop missiles which can reach deeper into the other's territory, putting at risk major population centers, including Islamabad and New Delhi.

China is also a major proliferation concern, as an alternative supplier when western export controls make technology and weapons more difficult to acquire. China acceded to the Nuclear Nonproliferation Treaty and agreed to abide by the Missile Technology Control Regime last year. More recently, it signed the Chemical Weapons Convention. These are all positive developments, but we remain watchful for signs that China is not living up to its commitments. The breadth of Chinese contacts with potential proliferators makes detecting and confirming potentially dangerous transactions difficult.

As Iran's principal nuclear supplier, China has supplied research reactors and other technology. While China's dealings with Iran have been consistent with the NPT, it is of concern nonetheless given Iran's pursuit of a weapons capability.

On the other hand, China's relationship with Pakistan is of greater concern. I am sure you have noted the press over the past six months covering China's reported sales of missiles to Pakistan. We are concerned about reports that indicate China has transferred M-11 related missile equipment to Pakistan, and we are monitoring this issue carefully. We are also concerned about Beijing's missile and chemical transfers to the Middle East.

I wish I could come to you, less than half-a-year after my last testimony on this subject, with better news and report that we have witnessed great strides toward solving the problem of proliferation. But once again I have painted a rather bleak picture because I am afraid accuracy and candor require bleakness. The spread of nuclear weapons capabilities is of utmost concern because of the horrible destructive capacity. It will put millions of innocent civilians at risk and dramatically change regional security landscapes wherever these weapons are introduced.

A North Korean nuclear weapon would threaten our allies in all of Asia as well as US forces in the region. Iraq's indiscriminate use of chemical weapons in its war with Iran underscored the urgency in our efforts to stop the spread of and ultimately banish this whole class of weapons. And lastly, countries persist in pursuing biological weapons development, one of the most troubling capabilities of all, despite a strong international consensus to the contrary.

The Intelligence Community recognizes the urgency of this problem and is responding to the increasing threat and to the ever-increasing demands of our consumers for information on this vital issue. Indeed, by drawing attention to this issue, we are seeing a growing awareness in the international community about the dangers of proliferation and an increasing willingness to cooperate multilaterally to stem the spread. As a result, we are all making it more difficult for proliferating nations to develop dangerous weapons programs.

A nonproliferation initiative last year set forth principles to guide our nonproliferation efforts. The Intelligence Community was instructed to accelerate its work in support of US efforts to stem the spread of weapons of mass destruction, and to broaden our support to international organizations and increase the pool of experienced, well-trained experts committed to the nonproliferation agenda. The Nonproliferation Center, formed about one year ago, is focusing our efforts in this crucial area and improving our support to the policy, operations, licensing, and enforcement agencies. And we are making progress. But this a complex issue which cannot be tackled easily or quickly. It requires a long-term commitment, patience, and perseverance.

The value of intelligence is no longer measured only by how much it adds to our knowledge of a particular subject. It is also measured by how we have directly contributed to US and multilateral actions to stop proliferation.

A number of the questions in which the committee has expressed interest address the Intelligence Community's ability to contribute directly to countering proliferation and developing actionable intelligence to enable us to track and, ultimately, to interdict the flow of dual-use technology. We have put a heavy emphasis on collecting this type of information, and are making every effort not only to improve access to it within our government, but also to increase sharing among allies who, given the right information, can contribute to our common goal. Already, the US is discovering a willingness among nations to take decisive action against proliferators.

I know you are interested in U.S. support for international organizations. The UN's actions in North Korea and in Iraq illustrates how multinational support to international organizations has broadened the mission of the Intelligence Community. We have seen some remarkable changes in the world in just the past few years, with the UN taking a much more active role on the international scene. This

should grow in the future due to new international agreements such as the Chemical Weapons Convention and to strengthened existing agreements such as the Nuclear Nonproliferation Treaty, the Biological Weapons Convention, and the Missile Technology Control Regime.

These agreements are attracting more attention and wider membership, and we are seeing stricter enforcement. These agreements will require the full support of all member states, not just the US, to monitor compliance and ensure enhanced global security. We intend to cooperate aggressively and productively. The US, among many other nations, remains committed to providing the UN the information and support it needs to complete its mission in Iraq and elsewhere.

Working closely with the State Department, we have shared an unprecedented amount of information with the UN, assisting them in completing their new missions.

Clearly, strengthening the IAEA must go hand-in-hand with renewing and reinforcing the NPT. We've already witnessed a new willingness by the agency to pursue safeguards inspections more aggressively.

Mr. Chairman, I'd like to close on a note of optimism, tempered with caution. During the past two years, three nations--France, South Africa, and China--became new signatories of the NPT. Membership in other multilateral institutions such as the Australia Group and the Missile Technology Control Regime is expanding. Argentina is interested in joining the MTCR and is dismantling its Condor missile program. Germany, once a high technology supermarket for a range of troubling exports and countries, has enacted strict export controls.

We've made some important headway in making the proliferation of weapons of mass destruction a more difficult, expensive, and lengthy proposition. Obtaining these troubling capabilities today is a much more difficult task than it was a few years ago.

I believe the Intelligence Community has made significant progress on this difficult task. Through our approach and our continued cooperation with other agencies involved in policy, enforcement, licensing, and operations, we are setting the stage that will allow us to make further progress in countering proliferation activities worldwide.

Monterey Institute of International Studies

PREPARED STATEMENT OF WILLIAM POTTER

BEFORE THE SUBCOMMITTEE ON INTERNATIONAL SECURITY, INTERNATIONAL ORGANIZATIONS AND HUMAN RIGHTS OF THE COMMITTEE ON FOREIGN AFFAIRS

September 14, 1993

I am very pleased to have the opportunity to testify before the Subcommittee on International Security, International Organizations, and Human Rights. The Subcommittee has asked me to address the proliferation risks posed by nuclear exports from the Soviet successor states. I also was asked to identify specific policy tools at the disposal of the U.S. government that might be used to encourage nuclear export restraint on the part of the newly independent states (NIS).

THE SOVIET LEGACY

Soviet nuclear nonproliferation policy was noteworthy for the unusual degree to which it was in concert with that of the United States. This cooperation persisted during even the most troubled periods of superpower's relations in the 1970s and 1980s and was reflected in regular bilateral consultations and in a variety of multilateral fora including the International Atomic Energy Agency, the London Suppliers Group, the Nuclear Exporters (or so-called Zangger) Committee, and the NPT Review Conferences.

Notwithstanding this cooperation and overall commendable record on nonproliferation since it cut off nuclear assistance to China in 1958, the Soviet Union in the late 1980s and early 1990s undertook a number of nuclear export initiatives that signalled a less prudent approach to nonproliferation. These initiatives included efforts to market nuclear goods and services to non-NPT parties (e.g., Argentina, India, Israel, and Pakistan) without requiring the application of "full-scope" safeguards as a condition of export. During the same period, the Soviet Union also adopted a more lax nuclear export policy toward NPT states and expressed a readiness, for example, to sell South Korea sensitive nuclear technology including uranium enrichment and fast breeder reactor processes. Although none of these export initiatives were prohibited by the NPT, they implied that even long-time supporters of nonproliferation were, for the right price, prepared to sell nuclear equipment, technology, and services to potential proliferators.

These nuclear initiatives coincided with the decline of the Soviet Ministry of Foreign Affairs' influence on nuclear export decisions, and the corresponding rise in power of the Ministry of Atomic Power and Industry (MAPI). MAPI's export policy appeared to be driven primarily by hard currency considerations, with little regard for the foreign or defense policy implications of exports of sensitive technology. MAPI's ability to pursue an export policy which emphasized profit considerations was facilitated by the absence in the Soviet Union of any domestic legislation governing nuclear exports. It also benefited from the absence of public scrutiny due to the lack of Soviet journalists or independent experts knowledgeable about nonproliferation issues.

NATURE OF THE PROBLEM TODAY

The Danger of Unregulated Exports

The basic economic and domestic political conditions which encouraged a reorientation in Soviet nuclear export policy under Gorbachev remain today, but in a more acute form. Nuclear goods and services, along with other defense-related products, are among the few commodities from the former Soviet Union that are in demand abroad and are able to generate hard currency. They also are increasingly available to private and quasi-private nuclear entrepreneurs who have found a foothold in the nuclear export industry previously monopolized by the state-run firm Techsnabexport.

Most of the more sensational accounts of black market activity involving nuclear materials of NIS origin have not been substantiated. There is no hard evidence, for example, that nuclear weapons, nuclear weapon components, or significant quantities of weapons-grade fissile material has been smuggled out of the Soviet successor states. Unfortunately, conditions in the former Soviet Union are such that many of the reports are plausible even if not true. One therefore must be very careful not to discount the potential for proliferation-significant black market exports from the Soviet successor states based on what has been discovered to date. There also are indications that governmental organs in some of the newly independent states may tolerate, if not officially sanction, the export of sensitive nuclear commodities with little regard for their proliferation implications.

What is perhaps most surprising, given the economic chaos in the former Soviet Union is the absence of more substantial cases of nuclear smuggling. To be sure, nuclear-related items have found their way out of the Soviet successor states. Germany alone is alleged to have carried out over 100 arrests associated with efforts to smuggle nuclear material originating in the republics of the former Soviet Union. The government of Belarus also has acknowledged a number of illicit nuclear transactions involving its territory, including the interdiction of Russian uranium destined for Poland. According to Russian nuclear regulatory officials, even the Ministry of Atomic Energy (MINATOM) recently has confirmed that some quantity of fissile material has been stolen from MINATOM stockpiles.

While one cannot discount the possibility of undetected and militarily significant nuclear trade, the overwhelming majority of arrests and confirmed cases of smuggling attempts to date have involved small quantities of low-enriched uranium from civilian reactor fuel assemblies, non-weapons-related radioactive elements such as cesium, cobalt, and strontium, and bogus goods falsely promoted as nuclear. No uranium that has been seized, for example, has been enriched beyond 3 percent and most of the minuscule amounts of plutonium that has been confiscated has been in the form of flakes from smoke detectors.

Dual-Use Exports

The area in which nuclear-related trade from the former Soviet Union has flourished, with scarcely a peep from Western governments, is in dual-use materials. The two principal transgressors appear to be Ukraine and Estonia.

The Ukrainian case is the less surprising of the two, given Ukraine's extensive and diverse nuclear-related capabilities, its desperate search for hard currency earnings, and its ambiguous stance toward nuclear non-proliferation. The center for producing nuclear-related dual-use items in Ukraine is at Dneprodzerzhinsk -- until recently a closed military-industrial production complex. Dneprodzerzhinsk hosts a number of facilities for the production of heavy water, zirconium, and hafnium. It also is the single production site in the former Soviet Union for ion exchange resins used in the so-called "Asahi" chemical exchange process of uranium enrichment.

According to a U.S. firm which became part owner of one chemical plant at Dneprodzerzhinsk, its Ukrainian partner has already shipped 45 tons of hafnium and zirconium (two of 65 items on the Nuclear Suppliers Group (NSG) restricted list) to Belgium and the Netherlands where they sat for months at docks in Antwerp and Rotterdam awaiting export to unknown third parties. An additional shipment of 11 tons of hafnium from the same complex was detained in the fall of 1992 by Hungarian authorities who were suspicious about it end-use. All of these Ukrainian-produced commodities would be subject to stringent export control, if Ukraine were a party to the April 1992 NSG accord on dual-use exports. Unfortunately, it is not; nor has it been invited to join the NSG.

A less well-known and more surprising major exporter of dual-use items from the former Soviet Union is Estonia -- a 1992 signatory of the nuclear Non-Proliferation Treaty (NPT) but not a party to the 1992 NSG accord. Although lacking an indigenous production capability, Estonia recently has emerged as one of the world's leading exporters of rare metals, some of which have nuclear weapons applications. In one bizarre case last year, four tons of Russian zirconium was supposed to be routed to Estonia by an American-owned firm, ostensibly for purposes of jewelry production. When contacted by suspicious Russian export control officials, the Talinn government could not guarantee that Estonia was the end-user of the material,, which was of a grade

and quantity incompatible with jewelry manufacturing purposes. This particular license application was denied, but Russian officials believe large quantities of dual-use metals exported from Estonia ultimately find their way to states coveting nuclear weapons. U.S. Government officials acknowledge that large Estonian shipments of zirconium were also seized by Finnish customs officers. However, they do not indicate the intended end-user or what action, if any, was taken to try to alter Estonian export behavior.

It is possible that in the present environment of decentralized authority, porous borders, and underdeveloped export control structures, that trade in dual-use nuclear goods was undertaken by private nuclear entrepreneurs without the knowledge or sanction of the host governments. The volume of trade, the failure to establish meaningful export controls, and the delay in placing nuclear facilities under international safeguards, however, provide circumstantial evidence that some of the Soviet successor states are prepared to tolerate export behavior that threatens the nonproliferation regime.

The Nuclear Export Potential of the Non-Russian Republics

As of mid-1993, none of the nuclear facilities in the former Soviet Union was under international safeguards. The bulk of these sites are well-known and are concentrated in Russia, which is not obliged to place any of its facilities under safeguards by virtue of its status as a nuclear-weapon state party to the NPT. Less well-known is the presence of nuclear fuel cycle facilities and nuclear material stockpiles in the non-Russian republics. Although these nuclear assets are not likely to be adequate to support an indigenous nuclear weapons program (with the possible exception of Kazakhstan), they do pose significant proliferation risks from the standpoint of nuclear exports.

All of the former Soviet Union's nuclear warheads outside of Russia are located in Ukraine, Kazakhstan and Belarus (see Table 1). Despite promises by these three states to accede rapidly to the NPT, as of September 1, 1993, only Armenia, Azerbaijan, Belarus, Estonia, Latvia Lithuania and Uzbekistan had acceded to the treaty. None of these recent adherents to the NPT, nor any of the other Soviet successor states, aside from Russia, is a member of the Nuclear Suppliers Group or subscribe to NSG guidelines regulating the export of 65 dual-use nuclear items.

The most controversial and potentially significant fuel cycle facility outside of Russia is at Navoi in Uzbekistan. Information drawn from interviews over the past two years by the author and his associates with Russian and Uzbek nuclear scientists points to the possible existence of a uranium enrichment facility there, although its characteristics and present status are in doubt. According to one Russian scientist, in the early to mid 1970s and possible later, both conversion of uranium oxide to uranium hexafluoride and uranium enrichment were conducted at Navoi. The same source indicates that this information is consistent with the results of a recent analysis by local scientists of uranium ore tailings from the Navoi region. Their analysis, part of a study on the feasibility of recovering gold from the tailings, indicated the presence of an

unnaturally low concentration of uranium-235 (U-235), which could only have resulted from enrichment at some point in the past. Russian officials, however, continue to deny the existence of any operational U-235 enrichment facilities in the former Soviet republics outside of Russia.

Fuel cycle facilities are not the only places where one can find unsafeguarded nuclear material. The non-Russian states also have nuclear research and training centers in Yerevan (Armenia), Riga (Latvia), Minsk (Belarus), Kiev and Sevastapol (Ukraine), Almaty and Semipalatinsk (Kazakhstan), Tbilisi and Sukhumi (Georgia), and Tashkent (Uzbekistan). Many of these centers are co-located with research reactors. The ones at Riga and Tashkent are fueled with approximately four kilograms of uranium enriched to 90 percent U-235, while those in Kiev, Sevastapol and Almaty use uranium enriched to 36 percent U-235. There are about five kilograms of enriched uranium in the Kazakh reactor in Almaty and 1.36 kilograms in each of the two Ukrainian reactors. The three research reactors at Semipalatinsk have a total U-235 inventory of approximately 24 kilograms, at least 9 kilograms of which is probably enriched to over 90 percent. The research reactors in Minsk and Tbilisi also used highly enriched uranium before they were shut down in 1988 and 1990, respectively. It is not clear what was done with their fuel, although it was probably returned to Russia.

There are also 14 nuclear power reactors in commercial operation in Ukraine, two in Lithuania and one in Kazakhstan. Those of the graphite-moderated Chernobyl (RBMK) variety in Lithuania and Ukraine are a high power version of the plutonium production reactors used for military purposes.

A greater nuclear export and non-proliferation risk is posed by the unsafeguarded liquid metal fast breeder reactor (the BN-350) at Aktau (formerly Shevchenko) in Kazakhstan. This reactor used for both desalination and electricity generation purposes, is capable of producing over 100 kilograms of weapons-grade plutonium a year. It is the same kind of reactor which Israel expressed an interest in buying from the Soviet Union in 1991. It is not known how much plutonium has been produced by the Kazakhstani reactor since it began commercial operation in 1973, or how much unsafeguarded plutonium remains at the reactor site. Although the reactor appears to have been fueled primarily with uranium enriched to 20 to 25 percent U-235, it was designed also to use mixed-oxide (MOX) fuel. Beginning in 1990, according to Russian physicist Oleg Bukharin, approximately 100 fuel elements of MOX fuel were loaded into the reactor as part of a research and development program. The fuel assemblies reportedly were made in Russia from weapons material at the Mayak industrial complex near Chelyabinsk.

Two additional sites in Kazakhstan and Ukraine are of particular importance from the standpoint of unsafeguarded nuclear exports. They are the Ulbinsky Metallurgy Plant in Ust-Kamenogorsk, Kazakhstan, and the previously noted industrial complex at Dneprodzerzhinsk, Ukraine.

The Ulbinsky Metallurgy Plant is the largest producer in the former Soviet Union of beryllium used in civilian nuclear power reactors and also in the manufacture of nuclear weapons. The plant also produces nearly all of the fuel pellets used in Soviet manufactured reactors. These pellets contain uranium already enriched to a low level at gas centrifuge plants in Russia. As such, they may be attractive to countries with nuclear weapons ambitions such as Iraq and Iran because the initial, most energy-consuming part of enrichment would have been completed; the fuel pellets could also be used, once crushed, to obtain uranium tetrachloride for use in a calutron enrichment process.

The Dneprodzerzhinsk industrial complex also is the site of a uranium oxide production facility, in addition to functioning as a major production site for dual-use nuclear commodities. Although the plant is currently idle, it is reported to have a stockpile of 800 tons of unsafeguarded uranium oxide on its premises.

Underdeveloped Export Controls

Implementation of an effective nonproliferation strategy in the former Soviet Union is hindered by the low priority most policymakers there attach to the issue of export controls. In most cases this is not because national policymakers are opposed to the principles of export control and nonproliferation. Instead, it is the product of only faint recognition of the issues' relevance to their immediate situation in which they struggle to survive from one crisis to the next.

Unfortunately, even for those successor states where there may be some recognition of the importance of export controls -- e.g., in Belarus -- budget deficits and a shortage of trained personnel remain serious obstacles to meaningful corrective action. Only in Russia, which inherited most of the Soviet Union's nuclear export control structure, can one speak of a professional cadre of nonproliferation experts, well-versed in such matters as export control licensing, material accounting, physical protection, and international safeguards.

Even in Russia, which in 1992 adopted significant new export control measures, problems persist because of a combination of bureaucratic, legal and economic factors. A potential for conflict of interest and export control, abuse, for example, arises from the tendency for the head of the Export Control Commission to also direct the Commission for Military and Technology Cooperation, a formerly secret body whose mandate is to promote the export of defense items. The situation nearly became much worse in early Summer 1992, when the head of the two commissions, Georgi Khizha, sought to merge them into a single body. This action only was forestalled by a decision by President Boris Yeltsin after forceful intervention by the Ministry of Foreign Affairs. Although the recent dismissal of Khizha from his dual posts offered the opportunity to separate clearly the functions of promoting exports and export control, Oleg Soskovets has since assumed the head of both commissions.

The danger of new efforts to emasculate the Export Control Commission is heightened by the fact that the entire Russian export control structure continues to derive its legal basis from executive branch decrees rather than parliamentary legislation. In addition, poor pay, alternative employment opportunities in the private sector, and the perception of a reduced impact on policy outcomes are leading to a "brain drain" from the Ministry of Economics and the Ministry of Foreign Affairs. Such an exodus will clearly impede the development and implementation of sound nuclear export and nonproliferation policy.

The economic and political constraints under which the Russian export control system functions are evident in the decisions, apparently sanctioned by the new Export Control Commission, to sell Iran two nuclear power reactors and to provide China with nuclear assistance, including reactors and possibly a uranium enrichment plant. Russia previously had concluded a similar deal with India (which collapsed when Russia was unable to provide the credit promised by its predecessor) and is reported to have pursued reactor sales with Pakistan and Algeria. Although these sales do not violate Russia's NPT status or other formal nonproliferation obligations, they are at odds with prudent nuclear export policy. They also have the effect of encouraging other Soviet successor states to subordinate nonproliferation objectives to those of economic gain.

Notwithstanding certain shortcomings, Russia generally has taken positive steps to regulate nuclear exports. However, these actions are undermined by the absence of parallel export control bodies and procedures in the non-Russian states. As a consequence, one confronts the problem of "the weakest leak." That is, even if controls are in rather good shape in Russia, the absence of controls on trade and transit between Russia and the other successor states means that heavy water, beryllium, uranium oxide, and other controlled commodities can pass to the CIS point of least resistance and from there to countries of proliferation concern. This problem is likely to be compounded if a proposed "common customs zone" for CIS members is actually implemented.

A very important measure designed to correct this situation of underdeveloped controls was the agreement on export control coordination signed in Minsk on June 26, 1992, by eight of the Soviet successor states (Armenia, Belarus, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Uzbekistan; Tajikistan signed with reservations). The agreement specifies, among other things, that parties "will create national export control systems at their earliest convenience," and "will coordinate their export control policies." It remains problematic, however, whether the measures called for by the Minsk accord will actually be implemented. This was evident at the follow-on meeting to the accord held in 1992 and 1993. None of the non-Russian parties to the accord were able to report much headway in implementing the agreement. Belarus, however, is now poised to receive major U.S. export control assistance and Ukraine has made some important strides by creating a new control structure no longer hostage to the Ministry of Conversion and the remnants of the old Soviet military-industrial complex.

The Danger of Nuclear Mercenaries

Literally tens, if not hundreds, of thousands of scientists and technicians with experience in the design and manufacture of nuclear weapons and related technology have been produced by the Soviet military program. Reportedly, 100,000 scientists, engineers, and officials have nuclear security clearances equivalent to the Department of Energy Q Clearance in the United States. Three to five thousand of these individuals are directly involved in plutonium production and uranium enrichment activities and another two thousand may have detailed knowledge of nuclear weapons design. Today they are scattered throughout the republics which formerly constituted the USSR.

When I testified before a Senate subcommittee last year on a related topic, I emphasized that there is no evidence that most of these individuals are anything but loyal citizens who are reluctant to leave their homeland. I continue to believe that is true. Their dedication, however, is increasingly tested in an environment of job insecurity, food and housing shortages, plummeting prestige, and political turmoil. There also are indications, manifest in new union activity at the nuclear weapons laboratories and in private communications with Western scientists, that a growing number of Russian nuclear scientists distrust their lab and MINATOM bosses and believe that any Western assistance they receive will be used to line their own pocketbooks rather than to improve the average scientist's lot.

Worker dissatisfaction in the nuclear complex is also apparent in greatly increased job turnover figures, rising more than ten-fold since 1990 to a level of at least 20-30 percent. This substantial migration of the nuclear work force, much of it to the private sector, has the effect of complicating efforts to monitor nuclear scientists and raises doubts about lab spokesmen claims that no employees have sold their services abroad.

Indeed, nuclear industry officials in Moscow acknowledge that Russian nuclear scientists have received foreign offers for their services. There also are numerous Russian and Western media reports, difficult to substantiate, which suggest that Algeria, China, India, Iran, Iraq, Libya, and Pakistan are actively pursuing nuclear scientists from the former Soviet Union with some limited success. In addition, there is evidence that as many as 40 nuclear specialists from the former Soviet republics may have emigrated to Israel since 1989.

The potential proliferation implications of the malaise within the former Soviet nuclear weapons complex were recognized at an early date by Western governments. Their response was to support the creation of International Science and Technology Centers in Russia and Ukraine to engage in civilian research those scientists previously employed by the Soviet nuclear weapons program.

The concept was a sound one, but has yet to be realized in practice due to bureaucratic delays, a lack of enthusiasm for the project on the part of key actors in the

host government, and the multinational makeup of the center's boards. Although the Moscow center is now physically in place, it is unlikely that any grants will soon be made to under-employed Russian scientists. The proposed center in Kiev is even less advanced and its ultimate fate is apt to be determined by the outcome of the internal Ukrainian nuclear policy debate.

Appropriate U.S. Policy Responses

While there is little evidence that militarily significant nuclear exports from the newly independent states have taken place, conditions there are ripe for export control abuse. Massive stocks of weapons-grade materials, underemployed nuclear experts, unsafeguarded nuclear facilities, desperate demands for hard currency, and general governmental disinterest in, if not disregard for, the control of nuclear-related products require immediate corrective action.

A number of useful recommendations have been made over the past year, although their implementation has been less than successful. The proposals include means to expedite Soviet successor state accession to the NPT; to enhance the monitoring of nuclear exports (including greater U.S.-Russian cooperation and intelligence sharing); to develop nuclear export and non-proliferation expertise in the non-Russian states; to accelerate financial aid and technical assistance in the area of export controls and the retooling of weapons scientists; and to tighten the porous borders between Russia and its neighbors in the former Soviet republics. The international community must persist in pursuing these initiatives, but additional action is required.

Restore U.S. Credibility

U.S. leverage in nuclear negotiations with the Soviet successor states has been undercut by repeated, unfulfilled promises. To regain some measure of credibility, Washington must expeditiously use funds already allocated by Congress to reward nuclear export and non-proliferation restraint. As of September 9, 1993, only 52 million (i.e., less than seven percent) of the $800 million authorized by the "Nunn-Lugar" legislation had actually been expended.

It is imperative now to stop interagency squabbles and to make money available immediately to Belarus to reward its nonproliferation restraint. Money could profitably be used, for example, to establish a model export control training center in Minsk. The center could accommodate trainees from throughout the former Soviet Union and might serve the additional nonproliferation purpose of stemming the potential brain drain by restraining scientists from the nuclear weapons establishment in the related field of nuclear export controls and safeguards procedures. Similar centers might be established at modest cost in Kazakhstan and Ukraine to improve nuclear safety operations, to study alternative energy resources, and to devise methods for the cleanup of the environmental consequences of nuclear weapons production and testing.

Means also must be found now to provide Ukraine with assistance in the area of export controls and nuclear safety. U.S. policy which links provision of this assistance to conclusion of the so-called "umbrella agreement" no longer makes sense and, indeed, undermines the positions of the few organizational actors in Ukraine which support nonproliferation restraint. Timely provision of material assistance to organizations such as the Expert-Technical Committee and the State Committee for Nuclear and Radiation Safety, on the other hand, may enhance their bureaucratic influence, while lessening the risk of nuclear reactor mishaps and export leakage.

Look Beyond Ukraine

The focus of efforts to shore up the difficult situation in Ukraine should not lead us to ignore the nuclear export and nonproliferation problems in Kazakhstan, Russia, and the other successor states. Significant anti-NPT sentiment and an inclination to export anything to anyone for the right price is present, if less visible, in Kazakhstan. Moreover, support for the NPT could wane in Russia if Ukraine disavows its NPT pledge.

The presence on the territories of Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan of a variety of nuclear materials, equipment, technology and technical expertise is not reason for great anxiety over indigenous nuclear weapons programs in Central Asia. However, there are growing economic incentives there to sell sensitive products abroad. It, therefore, would be desirable for the United States to apply a portion of the funds earmarked for denuclearization and export control assistance to successor states other than the "big four."

Expand Nuclear Suppliers Group

Estonia, Kazakhstan, Ukraine and other Soviet successor states with nuclear export capabilities should be encouraged to join the Nuclear Suppliers Group (NSG). At a minimum, they should be invited to participate as observers at NSG meetings. The engagement of these states in the international export control process is important not only as a means to share technical information and secure policy commitments, but as a vehicle to create internal institutional mechanisms within the governments with responsibility for nuclear export controls.

Set Proper NPT Example

U.S. efforts to encourage nuclear export restraint in the states of the former Soviet Union are undermined by the perception that Washington does not practice what it preaches. The litmus test for the Clinton administration's commitment to nonproliferation will be its own self-restraint in dual-use exports, the consistency with which it applies non-proliferation standards, and, from the viewpoint of officials in Moscow, Kiev and many other foreign capitals, the extent to which it is prepared to forego nuclear testing and reduce its own nuclear arsenals.

To date, the international community has been fortunate to avoid a flood of illicit nuclear exports from the former Soviet Union. But this luck is unlikely to continue indefinitely. Unless steps are taken promptly to enhance the capability of the newly independent states to control nuclear exports and to alter the balance of incentives and disincentives to export sensitive nuclear goods and services, the next sensationalist headline about black market nuclear activity may well turn out to be true.

Monterey Institute of International Studies

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Biographical Sketch for Dr. William C. Potter

Dr. William Potter is a Professor and Director of the Center for Russian and Eurasian Studies at the Monterey Institute of International Studies. He also directs the MIIS Program for Nonproliferation Studies. He is the author of *Nuclear Profiles of the Soviet Successor States* (1993) and *Nuclear Power and Nonproliferation: An Interdisciplinary Perspective* (1982), the editor of *Verification and SALT: The Challenge of Strategic Deception* (1980), *Verification and Arms Control* (1985), *and International Nuclear Trade and Nonproliferation* (1990), *and the co-editor of Soviet Decisionmaking for National Security* (1984), *The Nuclear Suppliers and Nonproliferation* (1985), *Continuity and Change in Soviet-East European Relations* (1989), and *International Missile Bazaar: The New Suppliers' Network* (1993). He also has contributed to numerous scholarly books and journals. He has served as a consultant to the Arms Control and Disarmament Agency, Lawrence Livermore National Laboratory, the RAND Corporation, and the Jet Propulsion Laboratory. His present research focuses on nuclear safety in the former Soviet Union, the emerging nuclear and missile suppliers, and nuclear proliferation in the Newly Independent States. He is a member of the Council on Foreign Relations and the International Institute of Strategic Studies, and serves on the Board of Directors of the BENS Nonproliferation Steering Group.

PARTIAL TEXT OF REMARKS

BY DR. STEPHEN D. BRYEN
PREPARED FOR DELIVERY TO THE SUBCOMMITTEE ON INTERNATIONAL SECURITY, INTERNATIONAL ORGANIZATIONS AND HUMAN RIGHTS
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Today there is a new type of arms race. It is carried out, in part, by countries hostile to the United States and to U.S. interests abroad. These countries lacked a credible military threat other than terrorism against U.S. interests until now. Today, however, they are acquiring the technology to make weapons of mass destruction. The risk is increasing that those acquiring weapons of mass destruction might use them, or they might be used in conjunction with terrorist activity.

The acquisition process used by countries trying to get weapons of mass destruction is aimed at buying technology from supplier countries and using it to develop nuclear, biological and chemical weapons and delivery systems such as ballistic missiles and low-flying cruise missiles or RPV's.

In many ways the method of acquisition resembles that used by the KGB and GRU for the Soviet Union to acquire technology from the West.

Many sources of the technology are Western companies. Whether they are allowed to sell the technology because export controls have been relaxed and licenses are not required; or their sales are given official export approval.

Today no one seriously checks the end use on licenses that are routinely reviewed and approved. And for goods that do not require licenses, there is no basis for government intervention at all.

From what I can determine, there is very little interest nowadays in blocking exports of sensitive goods and materials, even where the evidence points to significant risks. This lack of interest covers all the COCOM-member countries.

Struggles over whether to "let something go" occasionally appear in the press. U.S. officials have been vexed over whether to sell cruise-missile engine technology to China (still being resisted); supercomputers to China (sale approved); Germany reportedly continues to sell advanced machine tools to Iran for their weapons programs (Switzerland and Italy are said to be doing the same); global positioning systems (many of them no longer controlled) are going to Iran and to other hot spots around the world and are being sold by many countries.

The lack of interest by licensing officials in carrying out a counter proliferation program suggests there is a major disconnect between what policy makers say and what they do. Nearly every American and European official endorses a counter proliferation program. On the other hand what we hear is mostly rhetoric. A serious counter proliferation policy would consist of the following elements:

(1) a structured, coherent *and coordinated* international program to control the flow of the most relevant technology that can be used for WMD programs;

(2) a defense program focused on ways to counter the threat of WMD weapons and their delivery systems;

(3) a strongly focused political effort to isolate the most dangerous threats to the international community.

A Coordinated International Program

Leaving technology controls completely in the hands of each country, without requiring coordination of licenses, is a prescription *for* proliferation.

One only need to look at what happens at the Commerce Department.

During the Iraqi arms build up period the Commerce Department approved hundreds of licenses for sensitive technology for Iraq. This happened, in part, because Commerce had a free hand and did not have to answer to anybody. When the occasional official within the Department had qualms - as some did - their objections were overridden.

The same happened in Britain where the Department of Trade and Industry made decisions on exports even where there was clear knowledge in their hands of significant risks -including nuclear weapons applications for the technology under consideration. Key documents about British decisions on exports have become known because the Matrix Churchill court case declassified them.

Neither the British nor American officials were concerned about the international ramifications of their exports policy. Other countries, Germany, Italy, Belgium and France were equally unconcerned, except to the extent that they wished to gain as much market share as possible.

Had there been a requirement that all licenses approved by each government still had

to stand up to international review, more care would have been given about approving some exports in the first place. In addition, internally the governments would have to take more seriously objections raised by their national security and intelligence agencies. Lacking an external coordinating mechanism, objections raised by national security and intelligence officials were, for the most part, disregarded.

COCOM is the only organization involved in controlling high technology that requires international coordination. Some (but not all) licenses must be submitted to COCOM and must obtain the acceptance of all the member states before the license can be agreed. This is what made COCOM a powerful tool for controlling strategic technology to the Soviet Union during the 1980's.

A similar mechanism is urgently needed if weapons of mass destruction technology are to be controlled effectively. If the administration wants to be taken seriously on the question of proliferation, then it has to insist on a coordinated mechanism for implementing effective controls.

A Counter Proliferation Defense Program

COCOM-type strategic export controls were always part of a defense program aimed at maintaining the balance of power. Because this was so, the strategic export control policy could be aimed in ways that harmonized with our defense programs. For example, as our weapons increasingly depended on computer and microelectronics technology, one vital way to block the Soviet drive to enhance its military capacity was to prevent their acquisition of these enabling technologies. Indeed, this example is also one of the major success stories of the 1980's and put the Soviet military at a disadvantage from which it could not recover.

A control strategy needs to be coherently linked to defense programs. Without defense programs aimed at the WMD threat, technology controls are not enough to do the job.

We were in a vacuum on Iraq and it was extraordinarily dangerous. We could not find Saddam's SCUD missiles (despite claims to the contrary); and once they were launched we did not fully destroy them when they were intercepted. We had no answer at all to the "Big Gun" which, luckily, wasn't ready for the war; and we had not prepared our targeting of Iraqi assets until very late in the game. Defensively, our troops were not well trained against potential chemical and biological attacks and in many cases were poorly equipped.

A strong case can be made to prepare ahead of time a comprehensive strategy against WMD weapons, technologies and support systems. Appropriate countermeasure technologies need to be developed that can be used against WMD delivery systems and command and control assets. When such a strategy is clearly underway, it is possible to shape technology controls to support the strategy.

In particular we need a comprehensive counter missile program that must include destroying launch sites, in the air destruction of launched missiles, and crippling command and control assets supporting the deployed missiles. Bringing NATO in on this problem might prove to be a very attractive way to demonstrate we are seriously interested in counter proliferation.

A useful step would be to make counter proliferation a separate part of the U.S. Defense budget. That would require the administration to define its counter proliferation program clearly and set goals that can be met.

Political Isolation of Specific Threats

One problem in counter proliferation strategy is political. In the case of Iraq, for example, Western countries were universally on the right political side of Saddam Hussein until the invasion of Kuwait. Trying to put in place a counter proliferation policy before that was very difficult.

But not impossible. As we now know (and should have known at the time), a Saddam Hussein equipped with nuclear, biological and chemical weapons was a threat and menace to the whole world. It would have been possible to maintain good relations with Saddam before the invasion of Kuwait and still have resisted the sale to him of WMD-linked technologies. Had the COCOM countries taken a clear course of action, Saddam would not have been able to develop his WMD weapons capability so easily. The fact that he had Western support in doing so gave him confidence the West did not care.

Unfortunately, governments were not interested in following a WMD isolation strategy toward Saddam. Evidence of this is the lack of useful intelligence on Saddam's WMD buildup and, occasionally, poor or misleading estimates including a total misunderstanding of Saddam's nuclear weapons programs.

Today there is a desire to do better (at least we are told that) and intelligence collection on WMD proliferation has been stepped up. But what about a policy of political isolation? Can we do, in respect to today's proliferators, what we should have

done yesterday to Iraq?

The case of China suggests we still have a long way to go. The consensus is that China has been selling goods and technology, including missile systems, in contravention of the Missile Technology Control Regime that they pledged to respect. After months of trying to sweep the issue under the rug, the administration decided the Chinese had violated their pledge and imposed sanctions.

A major weakness of the sanctions is they were not coordinated with our allies. Our allies were not asked to impose any corresponding measures. I don't know why the administration was unwilling to make an effort with the allies, if they thought the Chinese violations were serious. To carry out a sanction without the allies will not constrain the Chinese, but it will enrich European companies at America's expense.

Meanwhile, Europeans will view our ineffective sanctions cynically; the Chinese will make their purchases elsewhere; and many will believe that the American counter proliferation program is toothless.

Recommendations

To be regarded seriously, a counter proliferation has to be focused and consistent. It needs high-level leadership that can best be supplied by the United States. But leadership is just talk if it is not matched by actions. The U.S. will have to carry out its own comprehensive counter proliferation program to convince others to follow.

A first step is to review the process of export approvals of U.S. technology shipped abroad and to tighten up procedures and requirements. Top administration officials have to take the lead in scuttling sensitive, controversial, exports such as cruise missile technology to China, or they will not have credibility either at home or abroad on the subject of counter proliferation.

Once we get our own house in order, we need to establish an international mechanism to coordinate exports of technology from the former COCOM countries. I believe we still have the political clout to gain cooperation in this sector, but it will take the Secretary of State, perhaps the President, to make the case. Congressional action supporting such an initiative would be very helpful.

At the same time we need to make clear to those acquiring WMD systems that we view such acquisition as a threat and we will be prepared for the challenge. Strengthening our defense programs for counter proliferation and making it a separate part of the Defense budget and Defense strategy of the United States would be a positive step.

Finally, for egregious violations, whether by States or companies, we should be pushing for tough, international sanctions. Even the act of setting up a system to enforce sanctions will help to reduce the flow of WMD technology.

STATEMENT BY JOSEPH S. BERMUDEZ JR.

North Korea and China as Proliferators

Mr. Chairman, members of the committee...; I would like to thank you for this opportunity to present my views of the roles China and North Korea have played as proliferators of ballistic missiles and related technology to the Middle East.

Let me begin by providing a brief overview of ballistic missile development within China and North Korea.

China

China's involvement in the field of ballistic missile dates to the mid-1950s and the establishment of a indigenous ballistic missile program. The former Soviet Union played a key role in China's early ballistic missile program by providing training, technology transfers and R-1 Scunner missiles (a copy of the World War II German A4/V-2). This was soon followed by the Soviet delivery of a number of R-2 Sibling missiles (a development of the R-1, but still heavily based upon A4/V2 technology). Due to a souring of relations with the Soviets, the Chinese were forced to reverse-engineer the R-2. Subsequently producing their own version known as the DF-1 (Dongfeng or East Wind) in 1960. These early efforts provided the foundation upon which China would indigenously design and produced a long series of ballistic missiles and space-launch vehicles (SLV).

During 1964, China successfully tested the 1,000-1,200 km range DF-2 (Western designator: CSS-1). The DF-2 was designed with the intention of being able to strike at U.S. bases on Okinawa, Japan. The 2,600-2,800 km range DF-3 (CSS-2) was successfully tested during 1966, and was designed to strike at U.S. bases at Subic Bay and Clark Field, Philippines. This was following in 1970 by the 4,700 km DF-4 (CSS-3) which was designed to strike at U.S. bases in Guam. The DF-4 was subsequently used as the booster for CZ-1 SLV. Finally, during 1971, China successfully tested the 12-13,000 km range DF-5 (CSS-4) which was designed to strike at the continental U.S. The DF-5 was subsequently used as the booster for CZ-2/-3/-4 series of SLVs. China is currently pursuing work on a number of more modern and capable ballistic missile systems (e.g., DF-25, DF-31 and DF-41) which are expected to be operational during the mid to late 1990s.

To date, China is known to have provided intermediate range ballistic missiles, or technologies, to only one country - Saudi Arabia. During 1985, a major arms agreement between the two countries was finalized, calling for the sale of approximately 36 DF-3A missiles. Deliveries of the missiles began during 1987. Saudi Arabia has never employed its DF-3As. The missiles, however, were on operational stand-by during OPERATION DESERT SHIELD/DESERT STORM. Additionally, Saudi Arabia has not re-transferred any DF-3A missiles or technologies.

Although China had received a small number of Soviet R-11FM (a navalized version of the SS-1 or Scud A) during 1960, and had pursued several abortive projects during the 1960s (DF-41/61) and 1970s (DF-61), it did not seriously enter the tactical ballistic missile field until the mid-1980s. At that time it perceived that there was a financially lucrative market for such systems within the Middle East and South Asia. Currently, China has sold, or is marketing, three tactical ballistic missile systems. First, is the 600 km M-9/DF-15, which has a payload of 1,000 kg. Next, is the 300 km M-11/DF-11, which also has a payload of 500 kg. Finally, there is the 300 km 8610, which has a payload of 500 kg and is essentially a surface-to-air missile which has been modified for the surface-to-surface mission.

To date, China is known to have transferred tactical ballistic missiles and/or manufacturing technologies to a number of countries. Iran has received "8610" missiles, and manufacturing technologies; M-9/M-11 manufacturing technologies; as well as wide-ranging Chinese technical assistance for its missile and artillery rocket industries. Libya has negotiated for M-9 missiles and manufacturing technologies; as well as Chinese technical assistance for its indigenous missile program. At present, however, there are no reliable "open source"

indicators of any significant Chinese involvement in Libya's missile program. Pakistan has concluded an agreement with China to purchase both M-9/M-11 missiles and manufacturing technologies, however, due to international pressure the delivery of actual missiles has apparently now been deferred. Pakistan, however, is covertly receiving manufacturing technologies and components. Syria, originally had concluded an agreement with China to purchase both M-9 missiles and manufacturing technologies, however, due to international pressure this has been canceled. It has been replaced by the delivery of North Korean Scud Mod. C missiles and manufacturing technologies; as well as Chinese technical assistance for its indigenous missile program.

North Korea

North Korea's involvement in the field of ballistic missiles dates to the mid-1970s, when it sought to acquire missiles from China. Although China didn't possess short range ballistic missiles, the request coincided with internal interests, and development of a liquid fueled tactical ballistic missile designated the DF-61 was initiated. Due to internal Chinese events the project was canceled during 1978. This cancellation led North Korea to initiated it own indigenous ballistic missile program.

North Korea, however, simply did not possess the skilled manpower or technology to design a ballistic missile from the scratch. To overcome this serious limitation, North Korea entered into an agreement with Egypt to cooperate in the field of ballistic missile development. The most significant aspect of the Egyptian agreement was the transfer a number of Soviet Scud B missiles and launchers to North Korea. North Korea now set about reverse engineering the Scud B.

The first fruits of this effort didn't appear until 1984 when the North Korean Scud Mod. A appeared. It is believed to have been a straight reverse-engineered copy of the Scud B, with no modifications, and was built in extremely small numbers as a "proof-of-concept" article.

The rate of progress within North Korea's ballistic missile program remained steady until mid 1985. When as a result of the ongoing Iran-Iraq War, the Iranian Government concluded an agreement with North Korea calling for the bilateral exchange of missile technology; Iranian financing for North Korea's missile program; and an Iranian option to purchase the soon to be produced Scud Mod. B. This Iranian funding was of vital importance to the North Korean Scud program.

The Scud Mod. B achieved pilot production during 1985, and gradually increased to full scale production during 1986. Due to a number of minor modifications the Mod. B was able to achieve a 15% increase in operational range compared to that of the original Soviet Scud B - approximately 320 km versus 280 km with a 1,000 kg warhead.

During July 1987 the first North Korean produced Scud Mod. Bs arrived in Iran. Deliveries are believed to have continued through early February 1988, for a total of approximately 100. These Scud Mod. Bs played a significant role during the 1988 "War of the Cities." In addition to the delivery of the Mod. Bs North Korea provided assistance in establishing a Scud Mod. B missile assembly/production facility in Iran.

During the late-1980s North Korea reorganized its missile program along two paths. The simpler and quicker path was to only undertake minor modifications to the basic Mod. B system - this would result in the Scud Mod. C. The more complicated, and thus longer term, option was a complete redesign of the Mod. B., and would result in the Scud Mod. D (Nodong 1).

The 500 km range Mod. C began pilot production during 1989, and gradually increase to full scale production during 1991.

During late 1990 Iran and North Korea concluded several new agreements which included provisions for the Iranian purchase of Scud Mod. Cs and North Korean assistance in conversion of an Iranian missile maintenance facility in eastern Iran to first assemble and then to manufacture the Scud Mod. C. Beginning in January 1991, shipments of missiles and related equipment to Iran had commenced. The exact number of Scud Mod. Cs missiles acquired by the Iranians is not presently known, but is estimated to be approximately 100.

The Iranian agreements were soon followed by an agreement to provide Scud Mod. Cs to Syria. Deliveries of an estimated 60 missiles and 12 launchers began during April 1991. Additionally, Libya has displayed an interest in purchasing the Mod. C.

Although design of the Scud Mod. D (Nodong 1) is believed to have begun concurrently with that of the Scud Mod. C during 1989, it understandably proceeded at a much slower rate. The first prototypes are believed to have been ready in early 1991. Unlike the earlier models, the Scud Mod. D is believed to be a completely redesigned system based upon Scud technology. The estimated range of the Mod. D is approximately 1,000-1,300 km, which not only includes the entire Korean peninsula but at the 1,000 km range also: Niigata and Osaka, in Japan; Khabarovsk in Russia; and Beijing and Shanghai, in China. The 1,300 km range would include such cities as: Tokyo and Taipei.

There is considerable international concern over the Scud Mod. D (Nodong 1). Iran, Libya and Syria have displayed an interest in purchasing missiles, and/or the technology to produce them.

Some sources suggest that North Korea is developing a 1,500-2,000 km Scud Mod. E (a.k.a.: Scud X and Nodong 2) as a follow-on to the Mod. D (Nodong 1). If this is correct, this system is most likely only in the design stage at present and is unlikely to be seen in prototype form until after 1995.

One of the primary reasons for the long development period for North Korea's extended range missiles is that in order to achieve a range of 1,500-2,000 km using Scud-type technologies the use of either multi-staging or clustering is required, significant technologies with which North Korea has no experience. The recent incident in which a number of Russian missile designers were prevented from traveling to North Korea is noteworthy. These personnel were from the Makeyev design bureau which was responsible for Scud design, and could have addressed North Korea's weakness in multi-staging or clustering.

	DF-61	Scud B R-17E	Scud Mod. A	Scud Mod. B	Scud Mod. C	Scud Mod. D	Scud Mod. E
a.k.a.				Scud B	Scud C Scud PIP	Scud D Nodong 1 Rodong 1	Scud X Nodong 2 Rodong 2
Range (km)	600	280-300	280-300	320-340	500	1,000-1,300	1,500-2,000
Warhead (kg)	1,000	1,000	1,000	1,000	700-800	800	?
North Korean I.O.C.	NA	1981	1984	1985	1989	1993	1995-98

Characteristics of North Korean Scud Variants

Egypt

During the 1950s and 1960s Egypt unsuccessfully pursued several indigenous programs in an attempt to achieve a ballistic missile capability. It wasn't until the early 1970s, however, when the former Soviet Union provided a small number of Scud B systems, that it finally

attained such a capability. During the subsequent 1973 October War, Egypt became the first nation to employ ballistic missiles in combat since World War II, when it launched three Scud B missiles at Israeli positions on the Sinai peninsula.

Following the 1973 War Egypt initiated a modest program to maintain and upgrade its inventory of Scud B missile systems by replacing Soviet parts with indigenously produced, or foreign purchased, components. By the early 1980s this modest program evolved into a program to develop three ballistic missile systems: the RS-120, the Condor II/Vector and a product-improved Scud.

The RS-120 missile program began during 1986-1987, when Egypt approached the CONSEN Group firm of IFAT seeking assistance in developing a new ballistic missile. IFAT sub-contracted with the German firm of Messerschmitt-Boelkow-Blohm (MBB) and the Italian firm of SNIA. The initial goal of this project was to develop a missile with a range of 120 km. There are, however, indications that the ultimate goal was the development of a much longer-ranged missile. Little progress was made on this project when, due to international pressure upon MBB and SNIA, the project was canceled during 1988.

The Condor II/Vector program was a project, begun during late 1982, to produce a 800-1,000 km range ballistic missile in cooperation with Argentina, the CONSEN Group, and Iraq. This missile is known in Argentina as Condor II, in Egypt as Vector and in Iraq as Badr-2000. The initial plans are believed to have called for Argentina to complete the construction and testing of 10 missiles. Five of these were to be delivered to the Egyptian Ministry of Defense and five delivered to Iraq. Each of the three countries would then procure 200 missiles. Both the Egyptians and Iraqis anticipated that they would then begin production of additional Condor II missiles in their respective countries by the end of the 1980s. To expedite development, the CONSEN Group acted as a go-between for a number of well established European firms that were providing key components for the Condor II project, including; MAN and MBB of West Germany, Sagem of France, and SNIA-BPD of Italy.

By mid-1988, as a direct result of the considerable U.S. political pressure, arising from the arrest in the U.S. of Abdel Kader Helmy, Egypt officially withdrew from the Condor II project. This was marked by the formal cancellation of the contract between the Egyptian Ministry of Defense and IFAT during July 1988. This Egyptian withdrawal resulted in Iraq stopping its financial support for the project.

Although the cancellation of the Condor II project was a significant blow to ballistic missile development within Egypt, it wasn't a complete loss. The project provided Egypt with practical experience in a number of areas and resulted in the transfer of a large body of missile related technology to Egypt. These benefits could be applied to the product-improved Scud B program.

The Egyptian product-improved program (variously identified as "Scud B-100" or "Project T") dates to the late 1970s. When North Korea and Egypt concluded an agreement concerning the exchange of missile technologies and personnel. More significantly, Egypt, in violation of its agreement with the Soviet Union, transferred a small number of Scud B missiles to North Korea.

With North Korea's attainment of Scud Mod. B production status during 1987, published reports began to surface that North Korea was assisting Egypt with an improved Scud B program. These accounts were followed by additional reports during 1988 and 1989 that North Korea was directly involved in assisting with the establishment of an improved Scud production facility within Egypt. The extent to which these reports are correct is presently unknown. It is currently believed that North Korea provided Egypt with liberal access to its Scud Mod. B and Mod. C programs, including the technical documentation and engineering drawings. During late 1991 and 1992, reports suggested that Egypt would soon commence local production of an enhanced Scud. It is currently believed that the Egyptian program will not produce a copy of the North Korean Scud Mod. B or Mod. C, but instead is concentrating

upon its own derivative of the Scud B (possibly incorporating some of the North Korean modifications). To date there is no confirmed evidence that Egypt has either produced an product-improved Scud B based upon North Korean technology, or purchased Scud Mod. Bs or Mod Cs.

The ballistic missile related cooperation between Egypt and North Korea has been significant, and unquestionably beneficial to both countries. It is likely to continue at its present level for the foreseeable future, as is indicated by the continued exchange of high level political and military delegations. It is probable that Egypt will be granted access to the Scud Mod. D (Nodong 1) program.

Egypt has also obtained technologies and assistance from other countries for its product-improved Scud B program. Abdel Kader Helmy covertly obtained U.S. technologies during the late 1980s. During June 1990, China and Egypt are reported to have concluded an agreement, which called for China to update Egypt's Sakr Factory for Developed Industries to allow it to produce "...newer versions of Soviet anti-aircraft missiles, the surface-to-surface Scud B and Silkworm..." During late-1991 the U.K. Government brought pressure on British Aerospace (BAe) to halt the production of Scud components by Arab British Dynamics (ABD) of Egypt. By late 1992, ABD claimed that it intended to terminate its production plans for the product-improved Scud B program.

Egypt currently deploys only the Soviet supplied Scud B missile. The current status of the product-improved Scud B program is obscure. It is, however, currently believed that the program is at an advanced stage. Given the proper political climate and financial resources Egypt could promptly produce a product-improved Scud B missile.

Iran

When the Iran-Iraq war commenced in 1980, Iran possessed virtually no ballistic missile capabilities. By the end of that eight-year long war, the situation had changed dramatically. Iran had attained a ballistic missile capability that included: design and production of simple battlefield support missiles (e.g., ranges less then 300 km) and assembly and maintenance of foreign supplied ballistic missiles (e.g., North Korean Scud Mod. B and Chinese "8610"). It had also established the basic infrastructure upon which it initiated the indigenous design and manufacture of short range ballistic missiles (e.g., 300-1,000 km). These capabilities, however, were achieved at tremendous financial costs and with considerable assistance from China and North Korea. The war also provided Iran considerable combat experience in the employment of ballistic missiles. Iran was the target of approximately 350 Iraqi Scud B and al-Husayn missiles. The Iranians launched approximately 120 Scud Bs and Scud Mod. Bs.

Today Iran deploys a number of ballistic missile systems and is pursuing (with considerable assistance from China and North Korea) a multifaceted ballistic missile program. This program can be divided into two broad categories - battlefield support missiles and short-range ballistic missiles.

The battlefield support missile segment of Iran's ballistic missile program dates to the very beginning of the Iran-Iraq war. It grew out of the effort to design and manufacture several families of short-range artillery rockets and these would eventually include the Oghab, Shahin 1, Shahin 2, and others. During early 1988, and after overcoming a number obstacles, Iran began production of its first battlefield support missile - the Nazeat (sometimes referred to as Mushak-120 because of its 120 km range, or Nazeat 6). Since that time Iran has tested and apparently deployed an number of improved Nazeat family missiles. Iran is currently preparing to produce the Nazeat 10 with a range of 150 km and has been working on version with a 200 km range. Both the short-range artillery rocket and battlefield support missile programs have received extensive assistance from the Chinese.

The short-range ballistic missile segment of Iran's ballistic missile program can itself be sub-divided into two broad components based upon the source of foreign assistance - North

Korea or China. There are conflicting indications as to the level of coordination and integration of this North Korean and Chinese assistance within Iran.

The North Korean component dates to the early 1980s when Iran approached both North Korea and China seeking missile technology and ballistic missiles in the Scud B class. During late 1983 Iran agreed to provide long term financing for North Korea's Scud Mod. B program. In exchange, North Korea agreed to provide Iran with Scud Mod. Bs as soon as they became available and to assist Iran in establishing the infrastructure required to first assemble, and then manufacture, the missile. Apart from the Egyptian transfers of Scud Bs, the Iranian financing has proved to be one of the primary factors contributing to North Korea's ability to achieve a meaningful indigenous tactical ballistic missile production capability during the 1980s.

During 1985, while waiting for the production and delivery of the Scud Mod. B, Iran was able to obtain a very small number of Scud Bs from Libya. These missiles were employed almost immediately to strike at Baghdad.

The first Scud Mod. Bs arrived in Iran during late 1987, with deliveries being completed by February 1988 (a total of approximately 100 missiles). These missiles were subsequently employed by Iran during the "War of the Cities," during which Iran launched approximately 80 Scud Mod. Bs.

With the end of the Iran-Iraq war during August 1988, Iran re-doubled its ballistic missiles elforts. Agreements were soon concluded with North Korea to for: continued Iranian funding of the North Korea's Scud program, the supply of additional Scud Mod. Bs. During 1990 these agreements were amended to include: the purchase of the Scud Mod. Cs and North Korean assistance in conversion of an Iranian missile maintenance facility to first assemble and then to manufacture the Scud Mod. C. The first shipments of Scud Mod. Cs and related equipment arrived during early 1991.

During the early 1990s, Iran, North Korea and China have jointly worked to assist Syria develop an indigenous ballistic missile capability. Both Iran and Syria have also entered into a number of agreements concerning the joint production of the Scud Mod. C.

At present Iran deploys both the Scud Mod. B and Mod. C; has the capability to assemble and maintain both missiles; and is developing the ability to manufacture the Mod. C. More significantly, Iran and North Korea have apparently concluded agreements which provide for both the future purchase of the 1,000 km Scud Mod. D (Nodong 1) and North Korean assistance in converting the Iranian Scud Mod. C facility to assemble/produce the Scud Mod. D. An Iranian delegation was present for the May 1993 test launching of four Scud Mod. D missiles in the Sea of Japan.

The Chinese supported component of Iran's ballistic missile program slightly pre-dates that of the North Korean component and has its roots in Chinese assistance with the early Iranian artillery rocket program. An accurate "open source" assessment of the post-war Iranian-Chinese ballistic missile related activities is difficult. There have been numerous reports concerning the direct transfer of M-9 and M-11 missiles, but there is no hard evidence to support them.

At present, the best estimate of these Chinese activities is that as a result of agreements signed during 1988, China agreed to provide Iran with the following,

- "M-class" missile technology required to produce ballistic missiles with ranges of 600-1,000 km. This included the training of Iranian engineers and technicians and the provision of Chinese advisers.
- Equipment and technical assistance in developing the infrastructure required to indigenously design, test and produce such missiles (e.g., manufacturing equipment, test range instrumentation, etc.).

- Continued assistance in designing and manufacture artillery rockets and battlefield support missiles.
- The sale, during 1990, of a small number of the short-range (120–130 km) "8610" missiles and assistance in converting existing Iranian facilities to produce it.

There are numerous conflicting reports concerning the status of Iran's missile program. During March 1989 it was reported that China was assisting Iran establish a facility, located in northeastern Iran, to manufacture an 800 km missile. By the end of 1990, launch range and test facilities are believed to have been completed. During May 1991, several reports emerged indicating that China was assisting Iran with the building and continued supervision of production facilities for HY-2 Silkworm anti-ship and "M-class" missiles. By March 1991, Iran is reported to have tested at least two new ballistic missiles, one with a range of 700+ km, and a second with a range of 1,000+ km. Since the range of the Scud Mod. C is 500 km, these missiles are believed to have been the products of the Iranian-Chinese program. Various reports suggest that the 1,000 km missile is identified as either Tondar-68 or -88, and that it is based either upon Chinese or Brazilian technology. No additional information has come to light concerning either of these systems.

Finally, during early 1993, reports surfaced that suggested Iran had both purchased the design of the 950 km Libyan al-Fatah ballistic missile and had received several prototype Chinese DF-25 missiles for testing. At present, these reports can't be confirmed, however, and for a variety of reasons would appear to be somewhat inaccurate.

Libya

Libya acquired its first ballistic missile system, the Soviet Scud B, during the 1970s. Since that time Mu'ammar al-Qadhdhafi has sought to attain an indigenous ballistic missile capability for Libya. During 1980, Libya concluded an agreement with the West German company OTRAG to develop a ballistic missile infrastructure, and to produce research rockets and ballistic missiles. Although, OTRAG was soon forced to quit the program due to political pressure, development continued spasmodically with the assistance of West German technicians. By 1987, reports indicated that Libya was developing a 500-700 km ballistic missile based upon the original OTRAG design under the code named Ittisalt. It could be armed with either conventional or chemical warheads.

Concurrent with these efforts, during the mid 1980s, Libya entered into a number of agreements with Brazilian firms concerning the acquisition of artillery rockets (SS-40 and SS-70), missiles and related technologies. The results of these agreements on Libya's ballistic missile program are presently unclear and they may have been combined (or superseded the earlier OTRAG based program) into a project to develop the 950 km range ballistic missile known as al-Fatah. None of the missiles resulting from any of the indigenous projects, including the al-Fatah, are known to have reached operational status. Most have failed during early test phases.

During 1986, Libya launched two of its Scud B missiles at U.S. facilities on the Italian island of Lampedusa in retaliation for the U.S. air raids on Libya. Due to the fact that the missiles lacked the range to reach the island and the missiles fell short into the Mediterranean Sea.

Several times during the mid 1980s Libya attempted to purchase SS-21 and SS-23s from the Soviet Union, but was re-buffed on each occasion. Libya, reportedly, also approached China seeking to purchase the DF-3A, but Chinese were not willing to discuss the matter. During 1988, however, Libya successfully entered into negotiations with China for the purchase of the M-9. These negotiations apparently were linked with similar Syrian efforts to purchase the M-9. Whether or not an actual agreement was signed is unknown. Following, however, considerable U.S. pressure during 1989, China agreed not to sell the M-9. Following this abrupt turn of events, Syria (which had concluded an agreement with China) and Libya entered into negotiations with North Korea.

Sometime during 1991, Libya and North Korea are believed to have concluded an agreement for the future Libyan purchase of Scud Mod. D (Nodong 1) missiles and/or related technologies. In return for signing this agreement North Korea received an immediate infusion of foreign capital which has facilitated its ballistic missile development program.

At present Libya deploys the Scud B, is continuing work on its indigenous al-Fatah ballistic missile, and is cooperating with North Korea. Libya is not known to have received the Scud Mod. B or Mod. C.

Syria

Although Syria received its first ballistic missile - the Scud B - from the former Soviet Union shortly after the 1973 October war, its current ballistic missile program has its roots instead within both the doctrine of "Strategic Parity" and the dramatic Syrian defeat in Lebanon during 1982. The doctrine of "Strategic Parity" calls for Syria to develop its military and economic capabilities to the point where it has the capacity to wage a one-on-one war with Israel and win. Integral with this strategy was the development of a capability to threaten Israel's strategic rear (e.g., with ballistic missiles and unconventional weapons) and to defend its own airspace from the Israeli Air Force. In effect, the strategy seeks to redress the traditional Israeli advantages.

By 1982, Syria had made, what it believed, were significant strides towards achieving "Strategic Parity." The June war in Lebanon, and Syria's dramatic defeat, however, highlighted the fact that Syria still had a ways to go. Particularly, during the war Syrian air and air defense forces were woefully outclassed and Syria had no viable capability to threaten Israel's strategic rear. As a result, the Syrians bitterly complained that the major reason for their defeat was that they had received only inferior weapons and training from the Soviet Union. In response to this criticism the Soviet Union quickly agreed to provide more modern and capable weapons systems and increased training. High on the Syrian shopping list were sophisticated SAMs and SSMs, in particular the SA-10 and SS-23. The Soviet Union believed that Syria's requests were excessive and would upset the military balance vis-a-vis Israel, so instead they provided SA-5s during early 1983 and SS-21 Scarabs later the same year. This was followed by the delivery of SSC-1b Sepal coastal defense missiles in 1984. While these systems did provide a significant improvement, they still did not provide the strategic capabilities the Syrians were seeking.

The Syrians were not pleased with the way in which they were being treated, so concurrent with their efforts to obtain SS-23s they also embarked on a project to develop the requisite infrastructure to indigenously produce SSMs. This indigenous project would apparently first seek to update existing stocks of Soviet supplied Scud Bs and SS-21 missiles (i.e., the design and production of improved conventional and chemical warheads). It would then expand either into the reverse engineering of a Soviet missile, or into the production of a foreign designed missile. These efforts apparently did not proceed far before it was realized that Syria possessed neither the monetary resources, nor a sufficiently developed industrial base to go it alone. Realizing this, Syria approached at least one western European country seeking assistance. The duration and extent of this western assistance, if any, is presently unknown. It is believed, however, to have been minimal at best.

Concurrent with these efforts to acquire advanced ballistic missiles, Syria was also developing the capability to indigenously produce chemical warfare agents and chemical warheads for its missile forces. By early 1986, Syria had produced chemical warheads for its Scud Bs and possibly SS-21s. Exactly how and where Syria acquired this technology is uncertain. It is possible that North Korean assistance was a major factor.

During 1986 Syria made another, more emphatic, request for the purchase of SS-23s. The Soviet's, apparently, gave this request serious consideration and had possibly even concluded a tentative agreement. By mid 1987, however, the Soviet Union had publicly stated that it

was not going to supply Syria with SS-23s (this was probably a result of the U.S.-Soviet INF Treaty). Angered by the Soviet decision, the Syrians, during 1988, concluded an agreement with China for the purchase of the M-9. This purchase was to be funded, in part, by aid received from Iran, Libya and Saudi Arabia

Following a December 1989 visit to Beijing by U.S. National Security Adviser Brent Scowcroft the Syrian-Chinese missile agreement was abruptly canceled. In the wake of this cancellation a series of interrelated programs/agreements were established to provide Syria with an indigenous ballistic missile production capability. In brief, these programs/agreements include,

- China would no longer provide Syria with M-9 missiles, but instead would provide increased technical assistance to Iran's ballistic missile program.
- In turn, Iran would fund and provide technical support for the construction/conversion of a Syrian facility to produce the North Korean Scud Mod C.
- North Korea would provide Syria with long-term technical assistance with the facility and in the short-term supply a number of Scud Mod. C missiles and launchers.
- China would then provide technologies and technical assistance for this new Syrian ballistic missile program.
- In addition to the Iranian backing, financing was provided both directly and indirectly from Libya and Saudi Arabia.
- With the money received from these programs/agreements North Korea would continue its Scud Mod. D (Nodong 1) development program. Access to which would be provided to Iran, Syria and Libya.

In addition to this Iranian and Chinese assistance, Syria has made efforts to obtain European technology and manufacturing equipment to support its new Scud Mod. C program.

At present, Syria deploys: Soviet supplied Scud B and SS-21 ballistic missiles; Soviet supplied SSC-1b coastal defense cruise missile; and North Korean supplied Scud Mod. C ballistic missiles. It has also achieved, or will in the very near future, the capability to assemble the Scud Mod. C from components. It is presently unclear when Syria will attain an Scud Mod. C production capability. When the North Korean Scud Mod. D (Nodong 1) enters production, it is possible that Syria will seek to acquire and/or produce it.

Export Controls

Before concluding, please allow me make a few brief comments on export controls. The effectiveness of export controls in containing ballistic missile proliferation within the Third World is somewhat problematic. It is clear that such controls have not stopped proliferation. They have, however, on occasion proven to be effective.

The crux of the problem is that as long as nations perceive the need for ballistic missiles they will seek to purchase, or produce, them. We should remember that the technology to produce Scud type missiles is 50 years old and readily available even to technologically backward countries such as North Korea. We know, however, that some countries are seeking much more sophisticated missiles, the technology for which is not necessarily that accessible. As our experience with the Condor II program has shown, such programs are much more vulnerable to external constraints.

The fact that we cannot stop all missile proliferation, does not mean that we shouldn't try, or that we ignore the issue. It is better to have a number of nations armed with short-range, crude and unreliable missiles, then nations armed with long range, accurate and reliable missiles.

It is clear that the threat of ballistic missile proliferation in the Third World is real and the danger to the United States and its interest are increasing. This threat must be met in a forthright, intelligent and creative manner.

Mr. Chairman, once again, thank you for your time and consideration.

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BEFORE THE HOUSE FOREIGN AFFAIRS
SUBCOMMITTEE ON INTERNATIONAL SECURITY,
INTERNATIONAL ORGANIZATIONS AND HUMAN RIGHTS

TUESDAY, SEPTEMBER 14, 1993

Mr. Chairman and members of the Committee, I want to thank you for giving me this opportunity to testify on U.S. proliferation policy toward rogue regimes. I wish to emphasize, however, that my perspective on this issue is somewhat different from those of other members of this panel since I am a practicing lawyer not a policy expert. I will try to share that legal experience today with some ideas and comments on both future potential policy options, and on current law, so as to help this Subcommittee as it continues its important work in designing a new system for containing proliferation in the post Cold War era.

On the general issue of sanctions laws, I think there is a great deal of confusion over their role as a viable legal option in the foreign policy process. A case in point are the legal measures recently invoked by the Administration against China under the Missile Tech Control Regime ("MTCR") for alleged shipment of M-11 missile technology to Pakistan. These sanctions were invoked pursuant to Section 11B of the Export Administration Act, and could result in the loss of approximately $1 billion worth of export business for Hughes Aircraft and other U.S. companies to China. Hughes and others will not be granted export licenses to sell such equipment to China for a period of two years. While Hughes will lose the business, China will not be hurt. They can easily find the technology sanctioned by the United States from other sources, such as British Aerospace, or Aerospatiale or Alcatel in France. Although the State Department will try to persuade our allies not to take advantage of our self-imposed restraint, past experience shows that some foreign company may well jump in to grab the business the Administration has forced Hughes to give up.

This point on sanctions legislation can also be made with equal force on unilateral export controls. Iran is a good example. Recently, Boeing sought U.S. export license authority to sell jet aircraft to Iran, but was refused due to State Department policy considerations. It is feared that Airbus will get the deal instead, notwithstanding any efforts by our State Department to persuade our European allies to block this potentially lucrative sale, as well. Meanwhile, in the wake of U.S. China sanctions, the Chinese are already planning to go on a major shopping spree this month in Germany sponsoring a major trade tour. Among the shoppers will be Norinco, China's largest weapons manufacturer with sales exceeding $1 billion annually.

During the trade tour German machine tool manufacturers are looking forward eagerly to making new sales with China, and no doubt to capitalize on any U.S. policy qualms on trade with that country.

I read in the newspaper recently that a report will be issued shortly by the Institute for International Economics indicating that U.S. business will lose this decade up to $26 billion a year in foreign sales because of export controls. There can be no doubt but that a large portion of those lost opportunities for American exports and jobs will instead go to overseas competitors. An example is Lufkin Industries which helplessly watched a Canadian competitor sell oilfield pumps to Libya while Lufkin complies with the broad based U.S. embargo against that country.

This is a policy problem that deserves scrutiny by your Subcommittee Mr. Chairman to consider possible solutions. U.S. business is right. Why should they exercise forbearance if others don't? The real challenge for proliferation policy in the 1990's will be how to make any reformed export control system truly multilateral. Mere arm-twisting tactics to try to persuade allies to follow our lead are obviously not enough. I believe that there are creative legislative options that can be explored to encourage the growth of a truly multilateral nonproliferation regime for the post Cold War world.

Unilateral sanctions and export controls are not useful policy tools when the only people hurt are U.S. workers and businesses. A unilateral approach to proliferation policy makes no sense if others supply the technology we want to withhold. A colleague and distinguished trade lawyer here in Washington, Eric Hirshorn, made the point aptly in a recent press quote: "This is like asking US exporters to jump off a diving board into an empty pool with a promise to get our competitors to fill the pool before we hit bottom." Beyond persuasion what then can we do?

Mr. Chairman, we have only to look at a little noticed, obscure provision of the Export Administration Act to see the seeds of a new concept that could put real teeth into the idea of promoting a truly multilateral counter-proliferation policy. Section 11A of the Export Administration Act was passed in the wake of the Toshiba affair back in 1987 as a remedy to deal with COCOM export control diversions by foreign persons. Although never used since its passage, this statute could form the basis, with some adaptation, of a new mechanism for promoting better multilateral cooperation on export control enforcement. In essence, Section 11A authorizes the President to impose sanctions against any foreign person that violates COCOM promulgated, export control restrictions by barring their imports into the United States for a period not to exceed five years.

Unfortunately, Section 11A deals only with COCOM diversions. It does not apply to any violations of the MTCR, NPT or Australia Group regimes. Back in 1987 we were more focused on Cold War export control issues than in dealing with potential Sadaam Husseins. Those policy priorities have now changed dramatically, and we need to bring our laws around to better meet new challenges that are no longer COCOM and Cold War based.

For example, if we are really serious about denying China access to satellite technology for selling M-11 missile parts to Pakistan, then we should be equally prepared to take action against any foreign company that converts that business for itself if their home country is also a signatory to the MTCR regime. A foreign concern that sells China satellite technology that we have prohibited Hughes from selling should face the prospect of losing its right to sell goods to the American market for a period of time. Why take jobs away from the American economy only to give them to foreign competition? If the State Department is willing to impose sanctions taking up to $1 billion worth of business from Hughes Aircraft, then State should be equally willing to take tough action against non-U.S. companies who want to capitalize unfairly on our forbearance, which is only designed to help uphold multilateral accords.

It would not be difficult to draft legislation patterned after Section 11A of the Export Administration Act to give our government the right to take action against any foreign person that sells goods or technology in violation of a multilateral nonproliferation accord such as the NPT, the MTCR, the Australia Group or COCOM. This type of action would be particularly appropriate in situations where the United States has restricted U.S. business from exporting products to particular countries pursuant to multilateral accords.

Such legislation could have a startling impact on the dynamics of the multilateral enforcement process. U.S. business would no longer be a sacrificial lamb on the mantle of unilateral export control and sanctions policies. If we denied ourselves the business, then U.S. workers could also rest assured that foreign competitors who sought to capitalize on our self-imposed restraint would face the loss of selling their products in the U.S. market for an appropriate period of time. If the State Department hesitated to take such action against non-U.S. opportunists because of foreign government sensibilities, imagine the political outcry that would erupt in the United States. Why would our government be willing to force U.S. business to forgo export sales, but then refuse to apply comparable import restrictions against a foreign competitor that took advantage of the U.S. embargoed sale?

The potential of this idea can be practically illustrated by again considering Iran. At the insistence, I understand, of the State Department, Boeing has been prohibited from selling aircraft to Iran. If Airbus were to take the deal instead, why should our State Department not be equally willing to declare that Airbus will lose the right to sell its products in the United States for say, two years? The multilateral enforcement legislation I suggest could have a huge impact on the dynamics of enforcing various nonproliferation regimes. Any time our Government decided to prohibit exports to certain countries based on multilateral agreements, the State Department would know that it could also be forced to take action against any foreign companies that took actions undermining our export forbearance. In fact, the knowledge that unilateral export control decisions could lead to blocking imports of offending foreign companies could even encourage our State Department to be more prudent in calling on U.S. business to make such sacrifices. At the same time, if State made the decision for strong unilateral action under an international proliferation accord, U.S. business would know that the likelihood of seeing their sacrifice undone by foreign competitors would be substantially diminished.

Mr. Chairman, it is difficult to see how the State Department could argue against the type of legislation I am suggesting. If they are prepared to force American companies to exercise restraint from time to time for the cause of nonproliferation, State should make sure that the sacrifices of U.S. business are not undone by foreign competition. The State Department cannot have it both ways. If American business is forced to suffer then so should foreign friends who are committed to the same nonproliferation accords. Just as our government has the right to restrict U.S. exports, it has the same corresponding right to restrict imports into the United States. Section 11A of the Export Administration Act should be broadened to cover not just COCOM, but also all other multilateral non-proliferation accords.

Mr. Chairman, so far I have focused on what we can do legislatively to help possibly promote better multilateral cooperation in the future in situations where our government decides that unilateral export controls are necessary consistent with various multilateral, nonproliferation agreements. I was also asked by you to assess our existing policy tools for preventing proliferation of weapons of mass destruction. On this issue I would like to focus on one statute in particular, the Iran-Iraq Arms Proliferation Act of 1992. Passed as part of the National Defense Authorization Act for Fiscal Year 1993, this statute calls for a comparable system of export controls against both Iran and Iraq.

I am concerned, however, that the law passed by Congress has not been carried out and obeyed. Specifically, Section 1603 of the Iran-Iraq Act expressly requires that all export controls prescribed against Iraq under Section 586G(a) of the Iraq Sanctions Act of 1990 "shall be applied to the same extent and in the same manner with respect to Iran." Although the statute has been in effect for almost one year, the Commerce Department still maintains in place conflicting regulations that seemingly would allow the export to Iran of commodities now forbidden for export to that country by Section 1603 of the Iran-Iraq Act. While the Commerce Department may assert that in practice it has been following the broader requirements of the Iran-Iraq Act notwithstanding its conflicting regulation, I am concerned that the Department has allowed an illegal rule to stand on the books for practically a year since over-riding law was passed. Specifically, under Section 785.4(d) of its regulations, the Commerce Department still retains for itself the discretion to license for export to Iran commodities destined for civilian end-use but covered by foreign policy or national security controls. This regulation violates Section 1603 of the Iran-Iraq Act.

Particularly in the wake of Iraqgate, I am surprised that the Commerce Department failed to adjust its regulations promptly to comply with statutory law. As a lawyer, it disturbs me that a federal agency would feel comfortable in leaving a regulation in force for such a long period of time that is diametrically inconsistent with controlling law. Even worse, if the Commerce Department has issued any licenses pursuant to its illegal regulation since the Iran-Iraq Act was signed into law on October 23, 1992 the situation is far more serious.

On this score, Mr. Chairman, I have some concerns. I understand that since October 1992 the Commerce Department may have issued licenses for export to Iran of commodities in possible violation of the Iran-Iraq Act. Your Subcommittee Staff has supplied to me for legal assessment information indicating that a number of commodities have been shipped to Iran under G-Dest licensing classifications authorized by the Commerce Department. If, however, any of those commodities were placed on the commodity control list pursuant to foreign policy controls prescribed by Section 6 of the Export Administration Act then, consistent with the Iran-Iraq Act's prohibitions, they should never have been allowed.

This is not the only possible violation of the Iran-Iraq Act over which I am concerned. I understand that since October 23, 1992, the Commerce Department follows a policy of contract sanctity allowing the issuance of individual validated licenses for export to Iran of items covered by foreign policy and/or national security controls on the theory that the

contracts covering such transactions were executed prior to the date the Iran-Iraq Act became law, i.e., October 23, 1992.

The problem is I can find no language in the Iran-Iraq Act legally authorizing the Commerce Department to issue licenses based on contract sanctity. In my legal judgment, the Commerce Department has no legal authority to apply a policy of contract sanctity on exports to Iran. In part, I draw this conclusion from the fact that under another statute, the Iraq Sanctions Act of 1990, on which the Iran-Iraq Act is closely patterned, there was included by Congress statutory language, Section 586G(b), expressly authorizing the Commerce Department to invoke contract sanctity for purposes of licensing exports to Iraq.

Under standard rules of statutory construction, if Congress had similarly wanted to authorize the Commerce Department to apply contract sanctity under the Iran-Iraq Act, it would have expressly done so by using enabling language similar to that found in the Iraq Sanctions Act of 1990. There is no such language in the Iran-Iraq Act and accordingly, as a matter of law, any licenses issued by Commerce on the basis of contract sanctity for export of foreign policy or national security covered items to Iran have been in my legal judgment unlawful.

Finally, Mr. Chairman, I wish to turn to two proposed pieces of legislation on which you have asked me to comment, H.R. 2358 and S. 1172.

H.R. 2358 would impose sanctions against any foreign person that assisted a foreign country in building nuclear weapons. Consistent with the comments I have already made today, I think the general idea behind this proposed piece of legislation is excellent, but I ask why restrict its scope only to nuclear proliferation? Why not deal at once with the issues of nuclear, missile, CBW and COCOM type proliferation concerns comprehensively? We should consider sanctions solutions in the context of all multilateral accords dealing with proliferation issues, and not just on a piecemeal basis. Another comment I have on H.R. 2358 concerns the narrow scope of sanctions it contemplates, which would only take away from foreign persons the right to engage in business with the U.S. government. I suggest adding the specter of import sanctions to put more potential deterrent strength into the legislation.

Turning to S. 1172, its apparent purpose is to plug a loophole in the existing Iran-Iraq legislation by expanding sanctions to be applicable potentially to foreign persons. Mr. Chairman, I for one will be glad if this loophole can be plugged. It would help remedy the excessively unilateral cast of the Iran-Iraq Act as things now stand. As I have discussed above, it is not fair to restrict U.S. companies from doing business with Iran

if foreign companies will simply get the business instead. S. 1172 would help deal with this problem, but I think it should also be drafted to make clear that it applies only to violations of multilateral proliferation agreements on which international consensus on proliferation control parameters are already established. I would also respectfully suggest that there is an even bigger loophole in the Iran-Iraq Act that needs plugging. This is the potential failure of the Commerce Department to carry out and obey the Iran-Iraq's requirements that were already passed into law on trading with Iran one year ago.

Those conclude my prepared remarks Mr. Chairman. I thank you for this opportunity to testify on these important issues.

BIOGRAPHY OF RAMON P. MARKS

Ramon P. Marks is a partner in the law firm of Marks & Murase, specializing in export control and related complex international litigation. Mr. Marks obtained the largest punitive damage award in U.S. legal history in a foreign sovereign immunity act case, $55 million, against Sadaam Hussein's Iraq for abuses and frauds committed against the U.S. export control system prior to Iraq's invasion of Kuwait.

Mr. Marks is 44 years old and graduated magna cum laude from Dartmouth College where he was also elected to Phi Beta Kappa. He holds, as well, a masters degree in International Relations from the Johns Hopkins University School of Advanced International Studies. Mr. Marks obtained his law degree in 1976 from the University of Virginia Law School where he was Articles Editor of the Virginia Journal of International Law. He is a former U.S. Marine Corps Lieutenant, and a member of the Board of Directors and Executive Committee of Business Executives for National Security, a Washington, D.C. based "think tank" devoted to issues affecting the national security of the United States.

August 31, 1993

Honorable Ron Brown
Secretary of Commerce
Washington, DC

Dear Mr Secretary,

In connection with the ongoing interest of the Subcommittee on International Security, International Organizations, and Human Rights in aspects of arms control, disarmament and proliferation issues and international terrorism, I would greatly appreciate it if you would instruct the Bureau of Export Administration to supply me with the following documents and information:

1) Copies of the Commerce Department's Yearly Report to Congress for the years 1989, 1990, 1991, and 1992.

2) A copy of the Export Administration Regulations drafted to implement PL 102-484, section 1603 (the National Defense Authorization Act of 1992).

3) A print-out of all licenses approved for Iran since the NDAA was signed into law by President Bush on Oct. 23, 1992 to include, in addition to the standard licensing information you provide to Congress, a report for each case on the grounds for which approval was granted.

4) A detailed listing of all "informed" notices sent out to U.S. exporters under EPCI regulations, warning them that the exports they are considering may require a license because of proliferation concern. This listing should include the name of the exporter, the date of the notice, the name of the officer issuing the notice, the destination country, the end-user, and a description of the commodity under consideration.

5) A report listing all notifications to Congress under Article 6(j) of the Export Administration Act of 1979 (as amended). The report should include the name of the exporter, the license number, the ECCN number, the value of the commodity, a description of the commodity, the destination country, the end-user, the application and approval dates, and the agencies to which the license was referred.

6) The Commerce Department recommendations to interagency working groups for the sale of Boeing civilian airliners to Iran, and for the transfer of used Boeing civilian airliners by Kuwait to Syria.

7) I would greatly appreciate knowing whether there have been any cases for Iran since the NDAA of 1992 where the Commerce Department has proposed, or made, a commodity classification determination. If so, please submit a brief report on each case to include the name the exporter, the history of the case, and the agencies, if any, to which the proposed commodity classification determination was referred.

It is my understanding that this information is readily accessible through the BXA automated licensing data base and can be transmitted to me rapidly. In the event that some material requires more time to compile, please consult with Kenneth Timmerman or Dr. Robert King of the Subcommittee staff at 226-7825.

Cordially,

Tom Lantos

Tom Lantos, Chairman
Subcommittee on International Security, International Organizations, and Human Rights

cc: Chairman Lee Hamilton
cc: Subcommittee Chairman Sam Gejdenson

OFFICE OF UNDER SECRETARY OF DEFENSE
2000 DEFENSE PENTAGON
WASHINGTON DC 20301-2000

The Honorable Tom Lantos
Chairman, Subcommittee on International Security,
International Organizations & Human Rights
B358 Rayburn House Office Building
Washington, D.C. 20515

Dear Congressman Lantos:

This is in response to your letter of April 19, 1993 regarding a request for documents relating to certain export license cases.

Because of the volume of the documents, and substantial time required to coordinate release of sensitive classified and proprietary information originated and controlled by other departments and agencies, I provided a briefing on 20 July 1993 to Mr. Kenneth Timmerman and other subcommittee and full committee staff members. It is my hope that the discussion provided information responsive to issues of interest to you and perhaps may obviate the need to provide documents.

Mr. Timmerman said that, as a follow-up to our discussion, it would be helpful to explain the commodity classification process which was involved in one of the cases. Section 5(l) of the Export Administration Regulations states: "In any case in which the Secretary of [Commerce] receives a written request asking for the proper classification of a good or technology on the control list, the Secretary shall, within 10 working days after receipt of the request, inform the person making the request of the proper classification." Under this section, the Department of Commerce is not required to obtain the concurrence of or consult with the Department of Defense or any other department. DoD has encouraged Commerce to refer commodity classification requests to DoD for review. On occasion Commerce has done so, but has not established a standard referral process.

Please let me know if you have any further questions. In this regard, Mr. Timmerman may contact Steve Rosen of my staff at (703)-693-7110.

Sincerely,

Peter M. Sullivan
Acting Deputy Under Secretary
Trade Security Policy

Suppliers of Dual-Use Technology to Iran

Compiled from public sources by the Subcommittee on International Security, International Organizations, and Human Rights
Committee on Foreign Affairs

Country	Companies
Argentina	*5*
Austria	*1*
Belgium	*6*
Brazil	*1*
China	*11*
Czechoslovakia	*2*
France	*15*
Germany	*41*
Greece	*1*
Hong Kong	*1*
India	*2*
Iran	*6*
Ireland	*2*
Italy	*14*
Japan	*6*
Mexico	*1*
Netherlands	*1*
North Korea	*1*
Norway	*2*
Pakistan	*3*
Philippines	*1*
Poland	*1*
Russia	*4*
Singapore	*1*
South Korea	*2*
Spain	*9*
Sweden	*4*
Switzerland	*17*
Syria	*1*
Thailand	*1*
UK	*15*
USA	*52*
Total:	***230***

Country	Companies
Austria	*1*
Belgium	*3*
Chile	*1*
Czechoslovakia	*2*
Denmark	*1*
France	*7*
Germany	*59*
Germany (East)	*1*
Hungary	*1*
Italy	*2*
Japan	*3*
Libya	*4*
Liechtenstein	*1*
Malaysia	*2*
Malta	*1*
Netherlands	*2*
Russia	*1*
Seychelles	*2*
Spain	*1*
Sweden	*3*
Switzerland	*5*
Thailand	*1*
UK	*6*
UK, Germany	*1*
USA	*1*
Yugoslavia	*1*
Total:	***113***

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Country	Companies
China	*2*
France	*10*
Germany	*15*
India	*1*
Netherlands	*1*
North Korea	*2*
Sweden	*1*
Switzerland	*1*
Syria	*2*
UK	*7*
USA	*11*
Total:	***53***

Country	Companies
CIS	*1*
Czechoslovakia	*1*
Germany	*3*
Japan	*7*
North Korea	*1*
Russia	*1*
UN	*1*
USSR	*5*
Total:	***20***

Suppliers of Dual-Use Technology to Rogue Regimes

Compiled from public sources by the Subcommittee on International Security,
International Organizations, and Human Rights
Committee on Foreign Affairs

Key: CW= Chemical weapons, MT= Missile technologies, WM= Weapons manufacturing equipment

Company	Country	Recipient/ Category	Description/Source
CNEA (Comision Nacional de Energia Atomica)	Argentina	*Iran* Nuclear	Contracted to supply 115.8 kg of uranium enriched to 20% for use in an Argentine-built core for the Tehran research reactor; offered to sell a research reactor in 1987 and served as a consultant to Iran in renegotiating the eurodif debt with France *NuclearFuel 7/24/89; Nucleonics Week, 1/22/87.*
ENACE (Empresa Nuclear Argentina de Centrales Electricas)	Argentina	*Iran* Nuclear	Working under contract to KWU to complete construction of the Bushehr nuclear power reactors *Veronique Mourus, "L'Iran réaffirme ses ambitions," Le Monde, October 15, 1987* *Richard Kessler, Nucleonics Week, 12/11/86*
INVAP	Argentina	*Iran* Nuclear	A governmental company associated with KWU of Germany to equip and maintain the Bushehr nuclear power station. *Courrier International, December 19, 1991*
INVAP	Argentina	*Iran* Nuclear	Signed an $18 million nuclear cooperation contract with Iran, suspended by the Argentine government on 26 Jan 1992. (INVAP = the Argentine National Institute for Applied Research, and is part of the CNEA); offered to supply a replacement core using 20% enriched uranium for the University of Tehran reactor. *Le Monde 6/29/92, Nuclear Engineering International, 2/89: 52-54*
Jose Balaiseiro Nuclear Institute	Argentina	*Iran* Nuclear	Trained Iranian nuclear technicians, by terms of a 1987 contract by which Argentina supplied 20% enriched fuel for the Tehran research reactor. *Leonard Spector, Nuclear Ambitions, p 207.*
Sauer	Austria	*Libya* CW	Provided blueprints and engineering for construction of tunnels for the Tarbuna CW plant, ostensibly intended for the Great Man-made river project. Companies denies proliferation intent. *Frankfurter Allgemeine March 16, 1993*
Voest-Alpine	Austria	*Iran* WM	Complete assembly plant for local manufacture of long-range GH-45 howitzers. Peter Unteweger, former chairman of a subsidiary, Noricum, was jailed on related charges in September 1987 *Mednews 12/10/87*
Astra Holdings	Belgium	*Iran* Arms	Through British subsidiary, BMARC, supplied medium calibre munitions, weapons, and tooling to Iran via Singapore in mid-1980s *Independent on Sunday, 22 Nov 1992*
Atexco	Belgium	*Iran* CW	Intermediary for Iranian purchases of sodium cyanide from Rotexchemie in Germany Iranian owned *Mednews 3/18/91, 8/3/92*
Belgonucleaire	Belgium	*Libya* Nuclear	Supplied Libya's first 30 MW nuclear research reactor in 1972. Negotiations for a $100 million nuclear consultancy contract with Libya were blocked in 1986 by the U.S. *Nuclear Engineering International Apr 1986*
Cross Link	Belgium	*Libya*	Freight forwarders for equipment shipped to the Rabta plant *Stern Jan 12, 1989*
Flackt	Belgium	*Libya* CW	Cooling tower for Rabta plant *NYT Jan 16, 1989*

Company	Country	Category	Description
Ion Beam Applications	Belgium	*Iran*	Sold a cyclotron to Iran, according to a 1991 contract. Delivery was apparently licensed by Belgian government
		Nuclear	*Reuters 2/25/92*
Les Forges de Zeebrugge/Herstal	Belgium	*Iran*	Built a factory to manufacture air-launched rockets in the mid-1980s.
		WM	*Mednews 8/1/88; "Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
Mechime	Belgium	*Iran*	Teamed with Krupp Koppers of Germany to build a $1.4 billion copper complex in Sarcheshmeh. (Iran needs large quantities of processed copper and brass for the
		WM	production of artillery shells).
			MEED 24 March 1989
SOBEN	Belgium	*Iran*	Part-owner of Eurodif consortium
		Nuclear	*Tribune de l'Expansion, 10/28/91*
National Nuclear Energy Commission (CNEN)	Brazil	*Iran*	Negotiating in 1991 to sell $150 million worth of West German nuclear equipment obtained as a result of a 1975 Brazil-West Germany nuclear protocol. CNEN was in
		Nuclear	charge of Brazil's clandestine uranium enrichment program.
			Financial Times 12/5/91; Leonard Spector, *The Undeclared Bomb*, p 258
Industrias Cardoen	Chile	*Libya*	Reports from Chile allege that arms-maker Carlos Cardoen, under indictement in the United States for his dealings with Iraq, is negotiating to sell fuel-air explosives to
		Arms	Libya
			Santiago Domestic Service 10/15/90 (FBIS NES 10/25/90)
CEIEC-Macvio Technology Ltd	China	*Iran*	Joint venture with CEIEC, which has been supplying radars and manufacturing equipment to Iran's Armed Forces.
		WM	*Mednews 25 Nov 1991*
China Nanching Aircraft Manufacturing Company	China	*Iran*	Manufacturer of the Silkworm HY-2 missiles supplied during the Iran-Iraq war
		MT	*Jane's Soviet Intelligence Review, May 1989.*
China National Electronics Import and Export Company (CEIEC)	China	*Iran*	Supplied radars and manufacturing equipment for defense electronics plant
		WM	*Mednews 25 Nov 1991*
China Nuclear Energy Industry Corporation (CNEIC)	China	*Iran*	Began constructing a 30 MW research reactor at the Isfahan nuclear center in 1990 in
		Nuclear	terms of a Jan 1990 contract, that was photographed by U.S. satellites in Sept 1991 and identified as part of Iran's atomic weapons program. CNEIC is also supplying nuclear technicians and low-enriched uranium, as the export arm of China's Ministry of Energy Resources. In Feb. 1993, CNEIC signed an agreement with the Atomic Energy Organization of Iran to build two 300 MW Qinshan nuclear power reactors
			Washington Times, Oct 16, 1991; MEED March 5, 1993
China Precision Machinery Import-Export Corporation	China	*Iran*	Manufactured C-801 anti-ship missiles which U.S. intelligence reports, quoted in the
		WM MT	NY Times, said were delivered to Iran in 1987; also supplied Silkworm anti-ship missiles and associated manufacturing technology; delivered 90 CSS-8 anti-ship missiles in June 1992. Banned from business in the U.S. from June 1991 through March 1992, because of its role in missile sales to Syria and Pakistan
			NY Times, 10/28/87; Defense & Foreign Affairs Weekly, July 8-14 1985. Newsweek, 6/22/92.
China Precision Machinery Import-Export Corporation	China	*Syria*	Main contractor for sale of M-9 missiles and production equipment. Deliveries in July
		WM MT	1991 tracked by Israeli and US warships.
			Washington Times 7/2/91; Xinhua (Beijing) 7/15/91

Company	Country	Category	Description
China Zhongyuan Foreign Engineering Company	China	*Iran* Nuclear	Main building contractor used by China for foreign nuclear deals. Will oversee building of the reactors purchased from China in 1993. Work in tandem with the China National Nuclear Corp. *Beijing Xinhua 4/23/93*
China-Hewlett Packard	China	*Iran* WM	Joint venture with CEIEC, which has been supplying radars and manufacturing equipment to Iran's Armed Forces. *Mednews 25 Nov 1991*
Great Wall Industry Corp	China	*Iran* MT	Believed to have contributed to sale of M-9 and M-11 missiles and manufacturing technology. Banned from business in the US from June 1991 through March 1992, because of its role in missile sales to Syria and Pakistan. *Al Ittihad, 9/20/89; Mednews 6/8/92; Bermudez, "Ballistic Missile Developments in Iran," Monterey Institute, 1993.*
Poly Technologies	China	*Iran* MT	Believed to have contributed to sale of M-9 and M-11 missiles and manufacturing technology, sold tanks and armored vehicles. *Mednews Sept 15, 1991.*
Poly Technologies	China	*Syria* MT	Believed to have orchestrated sale of M-9 missiles and manufacturing technology. *Mednews Sept 15, 1991*
Qinshan Nuclear Power Co	China	*Iran* Nuclear	Main contractor for the Qinshan 300 MW nuclear power reactors sold to Iran in June 1993. *Reuters, July 30, 1992; UPI 2/23/93; IRNA 7/6/93*
Shanghai Nuclear Engineering Research and Design Institute	China	*Iran* Nuclear	Designer of the Qinshan 300 MW nuclear power reactors sold to Iran in June 1993. *Reuters, July 30, 1992; UPI 2/23/93; IRNA 7/6/93*
Atomenergoexport	CIS	*North Korea* Nuclear	A Framework Accord was signed in 1986 for Soviet supply of a Pressurized Water reactor plant. The reactor vessels were to be supplied by Atomenergoexport. *Nucleonics Week, 2/27/86*
Nuclear Research Institute	Czechoslovakia	*North Korea* Nuclear	Signed a 22 May 1989 cooperation agreement with North Korea that involved training North Korean technicians in nuclear safety techniques. Other exchanges of nuclear information took place under the aegis of the Moscow-based Interatomenergo Society and the Nuclear Research Institute in Dubno, also in the USSR. *Prague CTK in English 6/29/93 (JPRS Proliferation Issues 7/7/92)*
Omnipol	Czechoslovakia	*Libya* Nuclear	Supplied large quantities of HMX explosive, which is used as a primary explosive for nuclear weapon cores. Signed a new contract in April 1991 to modernize the TAZ tank and armored vehicle repair factory. *Mednews 4/27/92*
Synthesia Semtin	Czechoslovakia	*Libya* Nuclear	Manufacturer of HMX explosive, which supplied by Omnipol to Libya, Iraq, and Iran for nuclear warhead production. *Mednews 4/27/92*
Synthesia Semtin	Czechoslovakia	*Iran* Nuclear	Manufacturer of HMX explosive, which supplied by Omnipol to Iran for nuclear warhead production. *Mednews 4/27/92*
Technoexport	Czechoslovakia	*Iran* Nuclear	Supplied HMX explosive to Iran, which is used in nuclear explosive devices. *"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992*
DISA	Denmark	*Libya* CW	Foundry equipment for CW bomb production line at Rabta. *Washington Times, Jan 16, 1989*

Company	Country	Category	Description
Air Liquide	France	*Iran*	Several air separation plants at major petrochemicals complexes (Arak, Mobarakeh), to produce oxygen and nitrogen. While this is a standard procedure at such plants, Iran will need a large indigenous supply of nitrogen as fuel for its various missile projects
		MT	*MEED 4 May 1990, 10 Nov 1989*
Alcatel Espace	France	*Iran*	Contracted to sell a network of satellite ground stations in 1990, worth 120 million Ffrs.
		WM	*Arabies Oct 1990.*
Centre Nationale de Recherche Scientifique (CNRS)	France	*Syria*	Helped establish Syria's Scientific Research Council (CERS) in 1969, and to expand its objectives in 1972 and 1983 to encompass a wide range of military technologies, including signal processing (radar, telemetry), chemical and bacteriological "pollutants," artificial intelligence, and precision mechanics; supervised the training of Syrian engineers in France. CNRS is the leading government-run scientific research institution in France and is involved in everything from nuclear energy, theoretical mathematics, to sociological studies.
		CW	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
CEPAT (Compagnie Europeene Pièce Automobile Tracteur Societe, aka	France	*Iran*	Served as front for the shipment to Iran from California by Reza Zandian of two IBM ES-9000 supercomputers in Jan. 1993; named in OEE indictment.
		MT	*OEE affadavit, 1/93.*
CGE Alsthom	France	*Libya*	Supplied 10,000 km of electric cabling, a miniature power plant, and a numerical process control system for a nuclear research reactor in the early 1980s, as part of Project Hamid.
		Nuclear	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992*
Cogema	France	*Iran*	Part-owner of Eurodif; jointly owns Sofidif with Iranian Atomic Energy Organization
		Nuclear	*Tribune de l'Expansion, 10/28/91*
Commissariat de l'Energie Atomic (CEA)	France	*Iran*	Borrowed $1 billion from Iran in 1974 to build an uranium enrichment plant in Iran. a part of payback of the loan, was negotiating in 1991 to supply Iran with enriched uranium
		Nuclear	*IHT 7/5/91*
Commissariat de l'Energie Atomic (CEA)	France	*Libya*	Alleged agreement to provide Libya with a small research reactor and 12.5 kg of HEU in 1981, as part of Project Hamid. No equipment actually shipped.
		Nuclear	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992*
Compagnie Generale Maritime	France	*Libya*	Main shipping agent for containers of nuclear-related electronic equipment sold to Libya as part of Project Hamid.
		Nuclear	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992*
Coredif	France	*Iran*	21% share owned by Iranian Atomic Energy Organization, part of Eurodif uranium enrichment consortium.
		Nuclear	*The Uranium Institute (London)*
Creusot-Loire	France	*Syria*	Built the Homs ammonia and urea plant in the late 1970s. While this is a legitimate civilian facility, both its equipment and the industrial processes can be used in chemical weapons production.
		CW	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992*
De Dietrich	France	*Libya*	Supplied glass-lined cauldrons for the Rabta plant
		CW	*NY times Jan 16, 1989*
Deckel France	France	*Syria*	Electrical equipment sold to buyers from the Scientific Research Council (CERS) in April 1992. CERS is a known procurement agency for Syrian unconventional weapons programs
		Nuclear	*Mednews 5/18/92, "Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992*

Company	Country	Category	Description
Eurodif	France	*Iran*	Iran purchased a 10 percent share of this European consortium for uranium enrichment in 1974, which it has retained despite payback by France of the associated $1 billion loan by Iran to the French Atomic Energy Agency.
		Nuclear	*Tribune de l'Expansion, 10/28/91*
Intertechnique	France	*Libya*	Parent company of INTEC.
		Arms	*Stern Jan 12, 1989*
Luchaire	France	*Iran*	Supplied air-to-ground rocket pods for the "Paratsu," a military ultra-light vehicle (ULM) designed by the French and delivered to the Revolutionary Guard starting in 1986. These ULMs, subsequently manufactured in Iran, were less sophisticated than those Iran sought to purchase from Stemme in Germany in 1993 and were ideal for terrorist or anti-shipping missions.
		Arms	*Mednews 8/1/88*
Nayral SARL	France	*Iran*	Conspired with Charles Caplan, indicted in the U.S., to ship Sarin-filled bombs to Iran in 1989.
		CW	*U.S. Court documents*
Rhone Poulenc	France	*Syria*	Major supplier to Syrian state-controlled pharmaceuticals factories.
		CW	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992; Mednews 8/17/92.*
Roussel-Uclaf	France	*Syria*	Major supplier to Syrian state-controlled pharmaceuticals factories.
		CW	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992; Mednews 8/17/92.*
Saderbank Paris	France	*Iran*	Financed sale of IBM supercomputer to Iran in 1992 and 1993 by Reza Zandian and his Iran Business Machines.
		Financial	*OEE affadavu, 1/93;*
Sagem	France	*Syria*	Signed an agreement in 1983 to help build a tank upgrade plant in Syria, to retrofit Syrian T-72s with French and NATO electronics.
		WM	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992; Mednews 8/17/92.*
SOCEA	France	*Iran*	Subcontractor to Framatome, to make high-pressure boilers for nuclear plants. Engineers from Socea accompanied the Framatome delegation to Busheir in Feb 1987 to perform a feasibility study for complete these power reactors.
		Nuclear	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992*
Societe Française de Negoce (SFN)	France	*Iran*	Conspired with Charles Caplan to ship Sarin-filled bombs to Iran in 1989.
		CW	*U.S. Court documents*
Societé Nationale des Poudres et Explosifs (SNPE)	France	*Syria*	Contracted with CERS to build a 280 million franc tank munitions plant in 1986 (final status unknown).
		WM	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992 Mednews 8/17/92*
Societé Nationale des Poudres et Explosifs (SNPE)	France	*Iran*	Supplied process and equipment for propellant powders; shipped hundreds of tons of HMX and plastic explosives in the mid-1980s for the production of naval mines.
		MT	*Mednews 8/1/88; L'Evenement du Jeudi, 23 July 1987*
Sofidif	France	*Iran*	Retains a 25% share in the Eurodif consortium, 40% of Sofidif owned by the Iranian Atomic Energy Organization.
		Nuclear	*Tribune de l'Expansion, 10/28/91*
Sourlau	France	*Syria*	Electrical equipment sold to buyers from the Scientific Research Council (CERS) in April 1992. CERS is a known procurement agency for Syrian unconventional weapons programs.
		Nuclear	*Mednews 5/18/92, 8/17/92; "Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992*

Company	Country	Category	Description
St. Gobain	France	*Syria*	Major supplier to Syrian state-controlled pharmaceuticals factories.
		CW	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
Technatome	France	*Libya*	Allegedly agreed to provide Libya with a small research reactor and 12.5 kg of HEU in 1981, as part of Project Hamid.
		Nuclear	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
Technip	France	*Iran*	Has contracted to build ethylene and other chemical processing plants at the Tabriz and Arak petrochemicals complexes, along with its Italian partner, Technipetrole (TPL). While these are legitimate civilian projects, ethylene has multiple military uses, including as a mustard gas precursor and fuel-air explosives.
		CW	*Lettre du Golfe, 8 March 1991; Les Echoes 5/3/91; MEED 1/15/93.*
Technip	France	*Syria*	Took over the Homs ammonia and urea plant in the early 1980, which it is currently expanding with the assistance of MW Kellogg of Britain. While this is a legitimate civilian facility, both its equipment and the industrial processes can be used in chemical weapons production.
		CW	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992*
Thomson-CSF	France	*Libya*	Attempted to sell 20 calutrons for enriching uranium in the mid-1970s (deal blocked by French government); supplied large quantities of nuclear equipment to Libyan intermediaries in 1981 as part of Project Hamid.
		Nuclear	*The Islamic Bomb; Intelligence Newsletter, March 1, 1989; Liberation, 2 June 1986*
Abacus	Germany	*Libya*	Front company run by Hans Joachim Rose that tried to purchase a Siemens process-line control system for the Sebha CW factory.
		CW	*Granada TV "World In Action," Apr 2, 1991.*
AEG	Germany	*Syria*	Electrical equipment sold to buyers from the Scientific Research Council (CERS) in April 1992. CERS is a known procurement agency for Syrian unconventional weapons programs
		Nuclear	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
AEG	Germany	*Libya*	Supplied production equipment to the Otrag missile group in the early 1980s
		MT	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992. Original source: Forum: Zeitschrift fur transnationale Politik, April 1979 #1/2, Roland*
Alcatel SEL	Germany	*Iran*	Installing, along with Siemens, up to 500,000 telephone lines per year as of 1992, based on ITT System 12 switch. Will also install fiber optics networks and Very Small Aperture Terminals for satellite links in distant regions; in final stage of negotiations to sell two "Zohreh" telecommunications satellites worth $350 million.
		WM	*French Embassy note, 12/1/92; Space News, 5/25/92*
Alfred Teves GmbH	Germany	*Libya*	Industrial cooling equipment for the RabtaCW plant.
		CW	*WSJ Jan 18, 1989*
Audi	Germany	*Syria*	Negotiations under way to help build a large pharmaceuticals plant near Damascus
		CW	*Tender documents [French Embassy weekly economic review, 2 Oct 1991]*
BASF	Germany	*Iran*	Teamed with Bayer of West Germany to build theQazvin pesticides plant; licenses were pulled by German Federal government in 1991. Part of the former Bitterfeld VEB (Chemikombinat) in the GDR
		CW	*Vrij Nederland 17 march 1990 (FBIS WEU 22 May); reply to questions by the German Bundestag, 6/92*
Bayer	Germany	*Syria*	Based in Esslingen, this company contracted to supply unidentified equipment to CERS in May 1992
		WM	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992. Mednews 8/17/92*

Company	Country	Category	Description
Bayer AG	Germany	*Iran*	Major equipment supplier for the Qazvin pesticides plant; built the aluminium bottling ("environmental packaging") plant, and the pesticides formulation plant, in 1987-88. Raided in this connection by German prosecutors on Nov 14, 1989.
		CW	*Vrij Nederland 17 march 1990 (FBIS WEU 22 May).*
Becker Kabel und Lamper	Germany	*Libya*	Surveillance cameras.
		Arms	*Stern Jan 19, 1989*
Bischoff	Germany	*Libya*	Tools and machinery for the Rabta CW plant.
		CW	*Stern Jan 12, 1989*
Bitterfeld Chemiekombinat	Germany	*Iran*	Aka Chemiekombinat Bitterfeld (ex DDR); subcontractor to Lurgi for pesticides plant.
		CW	*Der Spiegel 2/14/92*
Bolenz & Schafer	Germany	*Libya*	Manufactured fiber rolling machines shipped by Fritz Werner in 1991 via Rotterdam to Libya's ballistic missile program (Central Repair Workshop); under investigation by German Customs.
		MT	*German Customs Documents*
Bosch	Germany	*Libya*	Supplied electrical equipment for the Rabta plant.
		WM	*London Sunday Times, 5 Apr 1992.*
Braun AG	Germany	*Libya*	This Frankfurt-based subsidiary of Gillette supplied aerospace technology to Otrag in the late 1970s, which was transferred to Libya's ballistic missile projects.
		MT	*Geerd Greune, "Bundesdeutsche Raketen in Zentralafrika"*
Bürklin	Germany	*Libya*	Supplied test equipment for the Otrag missile program.
		MT	*Stern Jan 1, 1987*
Carl Schenck	Germany	*Syria*	High-temperature furnaces licensed to the Syrian Scientific Research Council (aka CERS) in 1990 and 1991.
		MT	*German Bundestag documents*
Carl Schenck	Germany	*Iran*	Supplied a balancing machine, with potential use in uranium enrichment centrifuges, to Sharif University, which has been identified with the nuclear program and is controlled by the Revolutionary Guards.
		Nuclear	*BBC Panorama, March 6, 1993*
China United Trading Corp GmbH	Germany	*Iran*	Based in Frankfurt, joint venture with CEIEC of China, which is supplying radars and manufacturing equipment to Iran.
		WM	*Mednews 11/25/91*
Coherent GmbH	Germany	*Iran*	Commerce alleges the German subsidiary of Coherent Inc of California committed 5 export control violations between April and Dec 1989, including anti-Israel boycott
		WT	violations and illicit sales to Iran.
			Export Control News, Oct 31, 1992
Colimex GmbH & Company KG	Germany	*Iran*	Purchased 210 tons of thiodyglycol on behalf of Iran from Alcolac USA in 1987 and 988.
		CW	*U S Court documents*
Contrust Vermogensverwaltun gs-gesellschaft	Germany	*Libya*	Front company for financial transactions and technology transfer for the Otrag program, located in Karlsruhe.
		MT	*Stern Jan 1, 1987*
DA Dampf	Germany	*Iran*	Ordered large quantities of ammonium perchlorate through Girundus, an intermediary based in Switzerland and the US, for Iran's ballistic missile programs. The AP was
		MT	seized in 1988 on board an Iranian freighter, the Aladat, bound for Bandar Abbas.
			IHT March 29, 1989

Company	Country	Category	Description
~~Degussa AG~~	Germany	*North Korea* ~~Nuclear~~	From Sept 15, 1986 through Oct. 15, 1987, Degussa illegally re-exported zirconium purchased from the U.S. to North Korea, where it was probably used for purity testing. ~~The company was fined $800,000~~. *Joe Bermudez, North Korea's Nuclear Programme," Jane's Intelligence Review, 9/91.*
Deutsche Bank	Germany	*Libya*	Financing for Rabta plant
		CW	*NY Times 1/1/89*
Dornier	Germany	*Libya*	Supplied production equipment to the Otrag group in the early 1980s, some of it through the German-Libyan front company, Hela Tronik.
		MT	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992. Original source: Karl Gunther Barth, "Deutsche Raketen fur Gadhafi", Stern, Dec 23, 1986*
Drebs und Kiefer	Germany	*Libya*	Stress engineering for Rabta plant.
		CW	*Stern Jan 12, 1989*
E. Merck	Germany	*Libya*	Precusor chemicals for Rabta plant.
		CW	*NY Times 1/1/89*
Ferrostaal	Germany	*Libya*	Parent company of Fritz Werner, which supplied machine-tools and manufacturing equipment for Libya's Al Fatah missile.
		MT	*Der Spiegel Sept. 6, 1991*
Ferrostaal	Germany	*Syria*	High-temperature furnaces licensed to the Syrian Scientific Research Council (aka CERS) in 1990 and 1991.
		MT	*Mednews 9/28/92; "Weapons of Mass Destruction," Simon Wiesenthal Center August 1992.*
FFA Flugzeugwerke Altenrhein	Germany	*Iran*	Attempted to procure military trainer aircraft in the United States in 1988, for sale to the Revolutionary Guards, but applications were denied by the DoC.
		Arms	*Mednews 6/8/92*
Forderung	Germany	*Libya*	This research establishment, based in Bonn, carried out numerous projects on behalf of Otrag, ostensibly as part of the early phase of the Arabsat program.
		MT	*Geerd Greune, "Bundesdeutsche Raketen in Zentralafrika"*
Frederick Deckel	Germany	*Syria*	Parent company of Deckel France.
		Nuclear	*Mednews 5/18/92; "Weapons of Mass Destruction," Simon Wiesenthal Center August 1992.*
Frederick Deckel	Germany	*Iran*	Sold numerous CNC machine-tools to armaments factories run by the Defense Industries Organization in the mid and late 1980s.
		Arms	*DIO brochures; Mednews March 1, 1993*
Fritz Werner GmbH	Germany	*Libya*	Supplied machine-tools and manufacturing equipment for Libya's Al Fatah missile project, some of which was seized on board a Libyan freighter by German Customs agents in Hamburg in July 1991.
		MT	*Der Spiegel Sept. 6, 1991*
Fritz Werner GmbH	Germany	*Iran*	Performed maintenance, construction, and technical conditioning work on the Bushehr reactors in the mid-1980s; shipped equipment to conventional arms factories in 1986; delivered a turn-key ammunition plant in June 1989, major supplier of propellant and explosives technology and automated process lines.
		Nuclear,	*"Iran's Nuclear Effort," July 18, 1991 paper by Yossef Bodansky, of the Task Force on Terrorism and Unconventional Warfare for the House Republic Research*
Funk und Navigationstechnik	Germany	*Libya*	Located in Augsburg, delivered measurement instruments and gyros designed for the Nike Hercules program to Libya's Otrag missil project, on Aug 26, 1985
		MT	*Stern Dec 23, 1986*

Company	Country	Category	Description
Gesellschaft fur Automation	Germany	*Libya*	Computers for Rabta plant
		CW	*Stern Jan 12, 1989*
Globesat Satelliten-technik GmbH	Germany	*Libya*	Associated with Otrag in Libya; company run as of 1983 by a former Otrag executive, Walter Zielger, who was in charge of Otrag tests.
		MT	*Geerd Greune, "Bundesdeutsche Raketen in Zentralafrika"*
H. Wohlenberg KG GmbH	Germany	*Iran*	Supplied machine-tools in 1988-1989 with Siemens controllers for an entire artillery factory in Iran. Although ordered by Iran's Defense Industries Organizaion in Dusseldorf, Wohlenberg claims the orders were intended to machine "high-pressure pipes of caliber 105, 130, and 155."
		WM	*Der Spiegel 1 June 1992*
Heberger Bau	Germany	*Libya*	Construction work for Rabta plant.
		CW	*The Times (London) Jan 7, 1989*
Hela Trooikelektronische Entwicklungs-und Vertriebsgesellschaf	Germany	*Libya*	Munich defense electronics company, set up in 1977 by a former Siemens engineer, Helmut Lang, supplied electronics gear for the Otrag missile program.
		MT	*Stern Jan 1, 1987*
Helasystem	Germany	*Libya*	Owned by Helmut Lang and Austrian citizen, Herwig Kunze; established to purchase high-tech and to oversee test program for the Libyan Otrag missile program.
		MT	*Stern Jan 1, 1987*
Hoch-Tief und Ingenieurbau GmbH	Germany	*Libya*	Contributed to the Otrag missile project in the early 1980s
		MT	*Stern Jan 1, 1987*
Hunnebeck	Germany	*Libya*	Building materials for Rabta plant.
		CW	*Stern Jan 12, 1989*
Imhausen Chemie	Germany	*Libya*	Main contractor of Rabta plant; company officials indicted and jailed in Germany in the first ever prosecution related to Germany's export control laws
		CW	*NY Times 1/1/89*
Industrial Electronics Gmbh	Germany	*Iran*	Attempted to procure in 1991 a U.S. built satellite down-link station on behalf of an identified agency of the Ministry of Defense in Iran.
		WM	*Mednews 6/8/92*
INTEC Technical Reading Logistik	Germany	*Libya*	Air-to-air refueling probes for Libyan Mirages. Bought out by Intertechnique of France
		Arms	*Stern Jan 12, 1989*
Intus Geselschaft für Informationstechnis che Ubertragungssysteme	Germany	*Libya*	Located in Pfaffenhofen, supplied telemetry equipment to Helmut Lang for the Ittissalat (Otrag) program, built to U.S. specifications
		MT	*Stern Dec 23, 1986*
J. Sartorius	Germany	*Libya*	Construction materials for Rabta plant
		CW	*Stern Jan 12, 1989*
Joseph Molhauer Machine	Germany	*Libya*	Prevision (forecasting) technology
		WM	*CBSN (Bonn) Jan 23, 1989*
Junker	Germany	*Libya*	Germany's former aircraft manufacturer; supplied high-temperature furnaces for use in the Rabta plant
		WM	*London Sunday Times 5 Apr 1992*

Company	Country	Category	Description
Karl Kolb GmbH	Germany	*Iran*	Suspected by U.S. government of having provided technology and production equipment in 1991 for Iranian CW programs. The U.S. Embassy in Bonn demarched
		CW	the German government on Kolb's activities in Iran in early 1992. Kolb's assistance was considered essential to Iran's CW programs by US officials.
			Mednews 7/6/92.
Karl Kolb GmbH	Germany	*Syria*	Suspected by U.S. and German government of having provided technology and production equipment for dual-use chemicals plants in Syria in the early to mid 1980s
		CW	*Mednews 7/6/92; "Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
Klöckner	Germany	*Iran*	Contracted in 1991 to build a 175,000 ton/year plant to manufacture polyvinyl chloride at Bandar Khomeini, in cooperation with Krupp Koppers, with German
		CW	government (Hermes) export credit guarantees. While this is a legitimate civilian contract, PVC plants can be used without conversion to manufacture chemical weapons agents.
			BBC, Irna, July 3 1991
Kane	Germany	*Libya*	Overhead cranes for Rabta plant.
			Washington Times, Jan 16, 1989
		CW	
Korfmann	Germany	*Libya*	Supplied special ventilating fans, worth DM 100,000 each, for the tunnel cutting machine built by Westfalia-Becorit, ostensibly for the Great Man-made river project,
		CW	which has been identified with Libya's third CW plant at Tarhuna
			Frankfurter Allgemeine March 16, 1993
Krebs and Kefler	Germany	*Libya*	Civil engineering company which helped build steel foundry at Rabta CW and munitions plant.
		CW	*London Sunday Times, 5 Apr 1992.*
Krupp Koppers	Germany	*Iran*	Contracted in 1991 to build a 175,000 ton/year plant to manufacture polyvinyl chloride at Bandar Khomeini, in cooperation with Klöckner. While this is a
		CW Arms	legitimate civilian contract, PVC plants can be directly used without conversion to manufacture chemical weapons. The Iranian government owns 25.1% of the Krupp group, which is also engaged in building a $1.4 billion copper complex at Sarcheshmeh.
			BBC, Irna, July 3 1991; MEED 3/29/89
KWU	Germany	*Iran*	Contracted to build two 1300 MW power reactors at Bushehr in 1974, contract cancelled by Revolutionary government in 1979 and still in ligitation. KWU has tried
		Nuclear	to deliver equipment to the site from the United States, but has been unable to obtain export licenses
			Nucleonics Week 11/9/89.
KWU	Germany	*Libya*	Allegedly contracted to build a clandestine nuclear reactor in Libya in the late 1970s intended for plutonium production.
		Nuclear	*"Weapons of Mass Destruction," Simon Wiesenthal Center 8/92*
Leifeld AG	Germany	*Syria*	Special mixing furnaces licensed for sale to the Syrian Scientific Research council (aka CERS) in 1991
		CW	*Mednews 9/28/92; "Weapons of Mass Destruction," Simon Wiesenthal Center August 1992*
Leis Engineering GmbH	Germany	*North Korea*	Suspected of having sold a silicium alloyed steel, a special steel alloy used for containing radioactive materials.
		Nuclear	*NY Times 11/10/91*
Leyhold AG	Germany	*Libya*	Source of vacuum smelting furnaces shipped as an "internal German sale" to W.C. Heraeus, intended for super-alloy work on Libya's Al Fatah missile. This sale, while
		Mil	legal, prompted the German authorities to pass a special ordnance to block the exis in11/91, and to strengthen export control legislation in3/92. (The goods were finai seized in Rotterdam in 7/91)
			Nuclear Engineering international, 2/92, pp 7-8

Company	Country	Category	Description
Leybold AG	Germany	North Korea Nuclear	The BND is investigating reports that Leybold has supplied North Korea with two electron beam furnaces, two "laboratory furnaces," and a "small laboratory furnace. The first four furnaces may have been shipped to North Korea through Pakistan or India in the earlyh 1980s, the laboratory furnace allegedly reached North Korea via the former GDR in 1987. The BND also suspects that two Leybold AG technicians went to North Korea in 1989 to work on a nuclear facility, and a company official returned there in 1990. *Nuclear Engineering International, 2/92, pp 7-8; Nucleonics Week, 11/28/91, p. 1 by Mark Hibbs*
Leybold AG	Germany	*Iran* Nuclear	Supplied vacuum pumps to Tehran University, of potential use in uranium enrichment centrifuges *BBC Panorama, march 6, 1993*
Leybold-Heraeus	Germany	*Iran* Nuclear	Unidentified nuclear supplies to clandestine Iranian research site controlled by the Revolutionary Guards, in the late 1980s (the company was split in 1989). *Der Spiegel 2/14/92*
Liebherr	Germany	*Iran* MT	Main contractor on the Hepco plant in Arak to manufacture earth-moving machinery [Iraq used Liebherr trailors as Scud-launchers]. *MEED 9/23/88*
Linde	Germany	*Libya* CW	Oxygen unit for Rabta plant. *Washington Times, Jan 16, 1989*
Lurgi Metallurgie GmbH	Germany	*Iran* CW	This subsidiary of Metallgesellschaft AG, signed a 44-month contract in 1988 for engineering consulting services, to build a major pesticides plant near Qazvin; contacts on this, and a pesticides "formulation" plant, began in 1984. *The Observer 3/13/88*
Lux Intertech	Germany	*Libya* MT	Shipping agent for fiber-rolling machine shipped to Libya's Central Repair Workshop in 1991 *German Customs Documents*
Magirus Deutz	Germany	*Iran* MT	Supplying 5,000 semi-trailors, along with Iveco of Italy, in a $329 million contract signed in 1991 *MEED 27 Sep 1991*
Magnetfabrik	Germany	*Iran* Nuclear	Supplied unidentified special magnets, of potential use in uranium enrichment centrifuges, to Sharif University, which has been identified as associated with the nuclear program and is controlled by the Revolutionary Guards. *BBC Panorama, March 6, 1993*
MAN Technologies	Germany	*Libya* MT	Parent of Ferrostahl *Der Spiegel Sept. 6, 1991*
Mannesmann Demag	Germany	*Iran* WM	Repair and expansion work of the Ahwaz steel plant. Ahwaz is a major manufacturing center for Iran's military industries *MEED 21 Feb 1992*
MBB	Germany	*Iran* MT	Test equipment allegedly supplied to Bandar Abbas Silkworm missile project; LA911B trucks, used as launch vehicles for the Oghab artillery rocket. *PMOI press release, Feb 2, 1991*
MBB	Germany	*Libya* MT	Original research team for Libya's Otrag ballistic missile program were former MBB engineers. German investigators believe that MBB supplied production equipment and design information as well, although this has never been formally established and is denied by the company. *Geerd Greune "Bundesdeutsche Raketen in Zentralafrika"*

Company	Country	Category	Description
Mercateam	Germany	*Syria*	This Munich-based company contracted to supply unidentified equipment to CERS in May 1992.
		WM	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992; Mednews 8/17/92.*
Mercedes Benz	Germany	*Iran*	Supplied LA911B trucks used by Iran as launch vehicles for the Oghab artillery rocket; in early 1992, established joint venture with Khavar Company of Iran to build
		MT	heavy-duty trucks (19 to 26 tons) and diesel engines in Iran. *Jane's Soviet Intelligence Review, April 1989; Iran Focus, Vol 5, No 2, page 14*
Metallgesellschaft AG	Germany	*Iran*	Parent company of Lurgi, signed a 44-month contract in 1988 for engineering consulting services, to build a major pesticides plant near Qazvin.
		CW	*The Observer 3/13/88*
MFG	Germany	*Syria*	This Stuttgart-based company contracted to supply unidentified equipment to CERS in May 1992.
		WM	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992; Mednews 8/17/92.*
Orbit Elektronische Vertriebsgesellschaf t	Germany	*Libya*	Supplied telemetry systems to the Otrag program in Libya; company run the head of Helatronics, Helmut Lang.
		MT	*Stern Jan 1, 1987*
Orbital Transport und Raketen AG (OTRAG)	Germany	*Libya*	Helped develop "sounding rockets" and provided technology for a ballistic missile project which has since come to be known by this company s abbreviated name.
		MT	*Wall Street Journal, Apr 17, 1987; John Cooley, "Libyan Sandstorm"*
Packard Instrument Gmbh	Germany	*Syria*	Supplied computers purchased in the U.S. in 1987 to the Syrian Atomic Energy Commission.
		Nuclear	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992*
Pawling and Harnischfeger	Germany	*Libya*	Mobile cranes for Rabta plan.
		CW	*Washington Times, Jan 16, 1989*
Philips Medizin System Gmbh	Germany	*Iran*	Gamma cameras and accessories supplied to nuclear medical institutes.
		Nuclear	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
Preussag	Germany	*Libya*	Water purification systems for Rabta plant. Preussag was a major supplier to Iraq s CW plants.
		CW	*Stern Jan 12, 1989*
Raab Karcher	Germany	*Libya*	Building materials for Rabta plant.
		CW	*Der spiegel Jan 15, 1989*
REI MDS Deutschland GMBH	Germany	*Iran*	Disk drives and computers for resale by a local distributor, Iran Argham, to unknown end-users in Iran.
		WM	*Mednews 6/8/92*
Rheinmetall	Germany	*Iran*	Provided technical assistance and equipment, to help rebuild Iranian weapons plants i the early 1980s; in particular, heavy artillery munitions lines.
		WM	*DMS Market Intelligence report, 1984; Mednews 8/1/88*
Rhenus	Germany	*Libya*	Transporter for equipment shipped to Rabta plant.
		CW	*Stern Jan 19, 1989*
Rose GmbH	Germany	*Libya*	Front company run by Hans Joachim Rose that tried to purchase a Siemens process-line control system for the Sebha CW factory. A German intelligence report in 1991 said Rose "has been associated for several years now with the Libyan chemical warfare programme by supplying articles and protective equipment.
		CW	*Granada TV "World In Action," Apr 2, 1991*

Company	Country	Category	Description
Rotes Chemie International Handels GmbH	Germany	*Iran*	Sold 100 tons of sodium cyanide to a Belgian intermediary, Atexco, which shipped to an Iranian "mining" company in Oct 1990. Blocked en route in Turkey and returned to Antwerp. Company had 3 additional exports refused by German government
		CW	
			Mednews 3/18/91; 4/19/93
Salzgitter Industriebau GmbH	Germany	*Libya*	This State owned steel company provided industrial planning and blueprints for the Rabta plant; a former Salzgitter's director was arrested in Germany on Jan 8, 1991 for his role in the Rabta project.
		CW	
			Washington Post, Jan 17, 1989; Reuters Jan 8, 1991
Schott Glasswerke	Germany	*Syria*	Corrosion-resistent glass pipes for syrian CW production plant; sarin components sold in 1983 as "boro-silicate glass"; additional deliveries to Syrian chemicals plants licensed in 1991
		CW	
			WSJ Sept 16, 1988; BBC Panorama, Oct 26, 1986
Schott Rohrglas GmbH	Germany	*Iran*	Supplied 5,000 kg of glass tubes in 12 palettes to the Atomic Energy Organization of Iran - Nuclear Research Center, in June 1991.
		Nuclear	
			German Customs Documents
Siemens	Germany	*Iran*	Parent company of KWU; shipped 28,000 tons of parts and equipment for the Bushehr reactor, following an arbitration court ruling in 1991; awarded manufacturing licenses for telephone switching gear to Iran Telecommunications Industry; contracted in Aug 1992 to build a 1,400 MW conventional power plant on Qeshm island; sold $21 million worth of computers, communications equipment, and integrated circuits with military and civilian applications to Iran Telecommunications Co and other state-run organizations
		Nuclear	
			Mednews, "Iran pledges to complete nuclear plant," Apr 29, 1991; AP 8/3/92; AP 5/14/92.
Siemens	Germany	*Libya*	Supplied production equipment to the Otrag group in the early 1980s, through the Hela Tronik front company.
		MT	
			"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992. Cf: Karl Gunther Barth, "Deutsche Raketen fur Gadhafi", Stern, Dec 23, 1986.
Stemme	Germany	*Iran*	$3 million (DM 6.5 million) contract, concluded in 1993, to sell Stemme S10 VC remotedly piloted vehicles for airborne reconnaissance and, eventually, terrorist operations. Iranian client, Barphal Ltd, has asked for a total technology transfer, to include training of Iranian production personnel in Germany. A Polish aeronautics firm, Andre Paplorek, has been chosen as an intermediary, to disguise the sale from German authorities.
		Arms	
			Subcommittee documents
Stewering	Germany	*Libya*	Contributed to the Otrag missile project in the early 1980s.
		MT	
			Stern Jan 1, 1987
Stietzel and Diedrich	Germany	*Libya*	In-flight technology
		Arms	
			CBSN (Bonn) Jan 23, 1989
Technischer Ueberwachungsverein (TUeV)	Germany	*Iran*	The Federal Republic's reactor inspectorate has been collaborating with Siemens and KWU, to determine the extent of damage to the Bushehr nuclear reactors in Iran. Inspectors sent to Iran in 1991 determined it would cost DM 5-8 billion to repair the reactors and proposed supplying new reactors instead.
		Nuclear	
			Mark Hibbs, Nucleonics Week, 5/2/91
Telemit AG	Germany	*Libya*	This Munich-based defense company was purchased by Qaddafi's brother-in-law, Saler Farkash, in 1979, and acted as one of Libya's primary front company's in Europe for more than 10 years. Believed to have cooperated with Fritz Werner to supply machine-tools to al Fatah program.
		MT	
			Wilhelm Dietl and Walter Schutte, "Deutsche Rustungsfabrik gehort Ghaddafi Quick, July 6, 1989

Company	Country	Category	Description
Thyssen	Germany	*Libya*	Provided hydraulic hoists to the Sebha chemicals plant in 1990.
		CW	*FBIS NES 7 May 1990 (original source: Der Spiegel).*
Thyssen	Germany	*Iran*	Supplied unidentified high technology to Iran's Sharif University, identified with the nuclear program and controlled by the Revolutionary Guards.
		Nuclear	*Berliner Zeitung 5/14/93 (Original source: German ZDF television, 5/13/93).*
TOP Technologie für Erdölproduktionen	Germany	*Libya*	This Munich-based company served as a front company for technology transfer to the Otrag program.
		MT	*Stern Jan 1, 1987*
Trumpf GMBH	Germany	*Iran*	Supplied CNC machines for military aircraft production; attempts to ship spares from the U.S. for the numerical control system blocked in 1988 and again in 1990
		WM	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
Turbofilter GmbH	Germany	*Libya*	Supplied a de-dusting machine for the tunnel cutting machine built by Westfalia-Becorit, ostensibly for the Great Man-made river project but believed used
		CW	to build the Tarhuna underground CW plant; machine worth DM 180,000 DM
			Frankfurter Allgemeine March 16, 1993
Uhde	Germany	*Syria*	Negotiations underway in late 1991 to help build a large pharmaceuticals plant outside Damascus.
		CW	*Tender documents [French Embassy weekly economic review, 2 Oct 1991]*
Uhde	Germany	*Iran*	Building a pesticides plant in Isfahan in 1988.
		CW	*MEED 9/23/88*
Vulcan Industrie Holding GmbH	Germany	*Iran*	Parent company of H. Wohlenberg, which built an artillery plant in Iran in 1988
		WM	*Der Spiegel 1 June 1992*
W C. Heraeus GmbH	Germany	*Libya*	Served as the "domestic German purchaser" of a Leybold high-temperature furnace which was destined for Libya's al Fatah missile project. Since this export was legal at
		MT	the time, the German government had to draft an emergency ordnance to block the delivery in 11/91.
			Mednews 10/12/92
Webac	Germany	*Libya*	Supplied valves for the Rabta plant.
		CW	*London Sunday Times, 5 Apr 1992.*
Weber GmbH	Germany	*Syria*	Special furnaces and isostatic presses licensed to the Syrian Scientific Research Council (aka CERS) in 1990 and 1991.
		MT	*Mednews 9/28/92; "Weapons of Mass Destruction," Simon Wiesenthal Center August 1992.*
Weltronic Industrievertretunge	Germany	*Syria*	Shipped advanced computers, purchased by a U.S. subsidiary, Weltronic Intl Vertriebs to a Syrian military research institute in 1986, a subsequent attempt was blocked in
		Nuclear	1987
			"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992
Westfalia-Becorit Industrietechnik GmbH	Germany	*Libya*	Supplied large tunelling machines to Libya via W& M Ltd, a Thai front company, in 1991, ostensibly for the Great Man-Made River project, identified by the State
		CW	Department in Feb. 1993 as intended for the Tarbuna underground CW plant under
			Frankfurter Allgemeine March 16, 1993
Zink	Germany	*Libya*	Gas burning equipment for Rabta plant
		CW	*Stern Jan 12, 1989*
Zwick GmbH and Co	Germany	*Iran*	Attempted to supply materials test equipment to the Revolutionary Guards (Ministry of Sepah) in 1989
		WM	*Mednews 6/8/92*

Company	Country	Category	Description
VEB Stahlbau	Germany (East)	*Libya*	Steel production for Rabta plant.
		CW	*Stern Jan 12, 1989*
Cy Savas Oikonomidia EE	Greece	*Iran*	Served as procurement front for Iran for the initial purchase of 30 tons of thiodyglycol from Alcolac USA in 1987, which sold for $54,000.
		CW	*U S Court documents*
Aircraft Technology Ltd	Hong Kong	*Iran*	Intermediary for $1 6 billion weapons and technology deal signed by Rafsanjani with China in July 1985 The deal included the construction of a large munitions plant in Bandar Abbas and other arms production facilities.
		WM	*Mednews, Aug 1, 1988.*
Lampart	Hungary	*Libya*	Supplied glass-lined reactor equipment for use at the Rabta plant.
		CW	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
Bhabha Atomic Research Centre	India	*Iran*	Advanced discussions for a $50 million research reactor; offer withdrawn in late 1991 by India under U.S. pressure; apparently back in the works in March 1992
		Nuclear	*MEED 11/29/91*
Pesticides India	India	*Iran*	Subcontractor to Lurgi for Qazvin pesticides plant; when Western suppliers refused to provide raw chemicals (precursors) suitable for the production of CW agents, this company shipped thiodyglycol and other chemicals to Iran.
		CW	*Der Spiegel 2/14/92*
United Phosphorus Ltd	India	*Syria*	25 tons of trimethyl-phosphite blocked by the German authorities on board a German freighter in Cyprus on July 31, 1992, as it was bound for the "Setama" company in Syria An earlier shipment of 45 tons reached Damascus on May 30, 1992.
		CW	*WSJ. 8/10/92. Le Monde, 9/24/92Der Spiegel, 41/92 (5 October)*
Fibchem	Iran	*Iran*	Iranian procurement organization for the purchase of a $100 million acrylonitrile plant, used in manufacturing synthetic fibers, from the U.S. subsidiary of British Petroleum The plant was to produce hydrogen cyanide as a byproduct. The deal was killed by the White House in Dec 1992.
		CW	*MEED Jan 15, 1993*
M/S Ray Textile Industries	Iran	*Iran*	Iranian front for purchases of thiodyglycol, used in mustard gas production
		CW	*U S Court documents (Alcolac Customs case)*
Melli Agricultural Chemicals	Iran	*Iran*	Iranian procurement front for initial negotiations for the Qazvin pesticides plant Approached John Brown [qv] Sponsor of Narim [qv].
		CW	*Vrij Nederland 17 march 1990 (FBIS WEU 22 Mav)*
Nargan Consulting Engineers	Iran	*Iran*	Iranian partner of Lurgi, for pesticides plant.
		CW	*Der Spiegel 2/14/92*
Narim	Iran	*Iran*	Iranian procurement front for initial negotiations for the Qazvin pesticides plant Approached John Brown
		CW	*Vrij Nederland 17 march 1990 (FBIS WEU 22 Mav)*
Saderbank Tehran	Iran	*Iran*	Financed sale of IBM supercomputer to Iran in 1992 and 1993 by Reza Zandian and F Iran Business Machines
		Financial	*OEE affadavit, 1/93.*
Aer Lingus	Ireland	*Iran*	Served as front for shipment of military aircraft spares starting in 1979 Sought assistance from Dane Aircraft, Aero Systems, and other U S. companies starting in 1981
		Arms	*South Florida Business News 1/29/90*

Company	Country	Category	Description
Leeds & Northrup Ireland	Ireland	*Iran*	Computerized training equipment for Iranian technicians working in a fluorine and hexafluoride plant. The Irish branch of L&N is serving as the intermediary for much of the equipment purchased for this plant in the U.S. (British Nuclear Fuels claims that the DoC misfiled this export request, and that the plant was built in Ireland, not Iran).
		Nuclear	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
AGIP Nucléoire	Italy	*Iran*	Part-owner of Eurodif consortium
		Nuclear	*Tribune de l'Expansion, 10/28/91*
Ansaldo Gle	Italy	*Iran*	Supplied power generators which allegedly used at the Moallem Kelayeh nuclear research center; attempted to export VAX computers to Iran.
		Nuclear	*PMOI briefing, June 4, 1991; Department of Commerce records.*
Banca Nazional Lavoro (BNL)	Italy	*Iran*	Indicted in Venice in late 1992 for schemes to finance and disguise shipments of arms and munitions worth at least several hundred million dollars from France and Italy to the Iranian Ministry of Defense during the Iran-Iraq war. Fifty-nine people in total have been indicted.
		Arms.	*WP, Dec 25, 1992.*
Breda	Italy	*Iran*	Built generators for Bushehr nuclear power plant, but Italian foreign minister says they will not be exported to Iran.
		Nuclear	*Nucleonics Week, 6/6/91.*
CNEN	Italy	*Iran*	Share-holder in Eurodif consortium
		Nuclear	*Tribune de l'Expansion, 10/28/91*
Danieli	Italy	*Iran*	Has contracted to modernize the Soviet-built Isfahan steel works, which directly feeds into Iran's largest military manufacturing complex. Nippon Steel of Japan will provide technical assistance on this $660 million contract.
		WM	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
ENI	Italy	*Libya*	Helped finance Project Hamid, an attempt by Libya to purchase $620 million worth of French nuclear equipment, by transferring stock worth 500 billion lira to the Libyan embassy in Paris and then to a Lebanese intermediary, Gabriel-Antoine Tannoury, in 1980 and 1981.
		Nuclear	*Intelligence Newsletter, March 1, 1989*
ISI Impianti	Italy	*Iran*	1991 contract worth $600,000 to supply a wind tunnel and training to Shiraz University. Believed for use in indigeneous aerospace programs. Contract includes training of university personnel in Italy, installation, testing, and final training of Shiraz staff in Iran.
		Arms	*International Defense Review, 8/91*
Italimpianti	Italy	*Iran*	Has contracted to build an all-new steel complex at Mobarakeh, 70 km from Isfahan, with production feeding into military and civilian factories in the Isfahan area (total project cost will be at least $4.7 billion).
		WM	*MEED 21 Feb 1992; MEED 29 Nov 1991*
Iveco	Italy	*Iran*	Supplying 5,000 semi-trailors, along with Magirus of Germany, in a $329 million contract signed in 1991
		MT	*MEED 27 Sep 1991*
Oto Melara	Italy	*Iran*	Provided technical assistance and equipment, to help rebuild Iranian weapons plants in the early 1980s.
		WM	*DMS Market Intelligence report, 1984.*
Peterlee	Italy	*Libya*	Unspecified equipment for the Rabta plant.
		CW	*London Sunday Times, 5 Apr 1992*
Snia Bpd	Italy	*Iran*	Provided technical assistance and equipment, to help rebuild Iranian weapons plants in the early 1980s
		WM	*DMS Market Intelligence report, 1984; Mednews 8/1/88*

Company	Country	Category	Description
Technipetrole	Italy	*Iran*	Has contracted to build ethylene and other chemical processing plants at the Tabriz and Arak petrochemicals complexes in Iran, along with its French mother company, Technip. While these are legitimate civilian projects, ethylene has multiple military uses, including as a mustard gas precursor and fuel-air explosives
		CW	
			Les Echoes March 5, 1991
Tecnimont	Italy	*Iran*	Engineering and construction work at the Tabriz ethylene base complex (contract worth $400-500 million.) In addition to numerous civilian applications, ethylene has
		CW	diverse military uses including as a mustard gas precursor.
			Petroles et Gaz Arabes 16 Sep 1991
Valsella Mechanitechnica	Italy	*Iran*	Supplied up to one million naval mines in the early 1980s, using explosives purchased through a European gunpowder "cartel" that included Bofors, SNPE,
		Arms	Nobelchemie, and a dozen other European producers.
			L'Evenement du Jeudi, 23 July 1987, 13 August 1987; The Nation, July 19, 1987
Association of Koreao Residents in Japan (Chochongnyon)	Japan	*North Korea* Nuclear	Major conduit for the smuggling of advanced dual-use technologies from Japan to North Korea. An attempt in Sept 1988 to smuggling 1,300 pieces of equipment, including semiconductors and computers, was blocked at Nihigata; in June 1988, an attempt to ship fluorine rubber and ultra-low temperature lubricants for submarines blocked.
			Seoul Choson Ilbo April 3, 1990 (FBIS East Asia 4/29/90)
Association of Science and Technology of Korean Residents in	Japan	*North Korea* Nuclear	Major conduit for the smuggling of advanced dual-use technologies from Japan to North Korea, especially in the areas of particle acceleration and centrifuge uranium enrichment; its official objective is to "contribute to the construction of North Korea by raising the level of academic research and technological development by Korean scientists in Japan."
			Seoul Choson Ilbo April 3, 1990 (FBIS East Asia 4/29/90)
Chamber of Commerce and Industry of Korean Residents in Japan	Japan	*North Korea* Nuclear	Vice Chairman Kim Pyong-to attempted to smuggle 1,300 pieces of equipment to North KOrea on board the Samjiyon-ho, blocked at Japan's Nihigata port on 5 Sept 1988 for COCOM violations. Equipment included NEC computers and integrated circuits. Kim was fined 200,000 yen on 31 March 1989
			Tokyo Shokun, May 1990 (FBIS EAS 4/20/90)
Fanuc	Japan	*Libya*	Supplied computerized numerical controllers and machine-tools installed in the Rabta CW and munitions plans.
		WM	*London Sunday Times, 5 Apr 1992.*
Hitachi	Japan	*North Korea*	Manufactured computers purchased by North Korea in the early 1980s, as auempt to upgrade technology in weapons design.
		WM	*Seoul Sin Tong-A Dec 1990 (FBIS EAS 1/25/91)*
Japan Steel Works	Japan	*Libya*	Bomb-plant at Rabta for CW bombs
		CW	*Mainichi Sept 15, 1988*
Kawasaki Steel	Japan	*Iran*	Supplying boilers and production equipment for major steel complexes at Arak and Mobarakeh
		WM	*MEED 4 May 1990, 21 Feb 1992*
Kuwol Sohang	Japan	*North Korea*	Helped smuggle 21,000 controlled scientific documents to North Korea in 1987 through North Korea residents in Japan.
		Nuclear	*Tokyo Shokun, May 1990 (FBIS EAS 4/20/90)*
Marubeni	Japan	*Libya*	Steel works for Rabta plant
			Christian Science Monitor, Dec 13, 1988
Marubeni	Japan	*Iran*	Major subcontractor for the Mobarakeh steel and galvanizing plant. Production will feed into civilian and military factories steel service center with continuous ga
		WM	*MEED 21 Feb 1992*

Company	Country	Category	Description
Mitsubishi Heavy Industries	Japan	*Iran*	Building 1200 MW power station near Qazvin, to power a secret uranium enrichment plant; purchasing licensed goods in the U.S. for Iran.
		Nuclear	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
Nakamichi Corporation	Japan	*Iran*	Parent company of Mountain Optech Inc. which attempted to sell computer parts to Iran in early 1993 for use in a military reconnaissance satellite.
		MT	*JINSA Security Affairs, June-July 1993.*
Nippon Steel	Japan	*Iran*	Subcontractor to Danieli of Italy to modernize and expand the Soviet-built Isfahan steel works, which directly feeds into Iran's largest military manufacturing complex.
		WM	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
Taesong Trade Company	Japan	*North Korea*	Smuggled radars, sonars, and integrated circuits from Japan to North Korea between 1984-87. Joint North Korean-Japanese owned company.
		Arms	*Seoul Choson Ilbo April 3, 1990 (FBIS East Asia 4/29/90)*
Tomei Shoji	Japan	*North Korea*	Smuggled 1,628 integrated circuits, including 102 controlled by COCOM, to North Korea in July and August 1986. Earlier that year, shipped microwave frequency measuring instruments to a state-run trading house, Choson Yongaksan
		Nuclear	*Seoul Singdong-A, Aug 1990 (FBIS East Asia, 10/15/90)*
Ceotral Workshop	Libya	*Libya*	Procurement front for the Al Fatah missile program.
			Simon Wiesenthal Center, "Weapons of Mass Destruction," Aug. 1992
		MT	
Jamahuriyah National Company for Oil Well Fluids and Equipment	Libya	*Libya*	Served as procurement front for purchase of eight stainless steel vessels from APV subsidiary in Malaysia, for the Tarhuna poison gas works.
		CW	*Alan George, "Libyan Poison Gas Deal Blocked," The Guardian, 3/22/93*
Misurata Research Center	Libya	*Libya*	Procurement front used by Libya for its Al-Fatah ballistic missile project
			Mednews 11/4/91
		MT	
Technical Industrial Corporation	Libya	*Libya*	Procurement front in Libya for the Otrag missile program.
			Stern Dec. 23, 1986.
		MT	
Jubel Trust	Liechtenstein	*Libya*	Alleged Libyan front company, working with Fritz Werner and other Germany companies to supply production equipment for the al Fatah program.
		MT	*Wilhelm Dietl and Walter Schutte, "Deutsche Rustungsfabrik gehort Ghaddafi" Quick, July 6, 1989.*
APV Hill and Mills	Malaysia	*Libya*	Principle intermediary for sale to Libya of eight stainless steel reactor vessels, made in Malysia by Pacific Wide, that were seized on March 5, 1993 by Singapore en route to Tarhuna.
		CW	*Alan George, "Libyan Poison Gas Deal Blocked," The Guardian, 3/22/93*
Pacific Wide	Malaysia	*Libya*	Manufacturer of eight stainless steel vessels sold to APV's Malaysian subsidiary, APV Hill and Mills and shipped to Libya. Shipment seized by Singapore on March 5, 1993
		CW	*Alan George, "Libyan Poison Gas Deal Blocked," The Guardian, 3/22/93*
Maral	Malta	*Libya*	Attempted on Nov 19, 1992 to purchase replacement parts for tunnelling machines provided to Libya by German companies for use in the Tarhuna proejct, without success
		CW	*Frankfurter Allgemeine March 16, 1993*
Hysia	Mexico	*Iran*	Hysia will help complete work on the "Nasr Project" at the Ahwaz steel works, which will feed into the military factories in the Ahwaz area. Total steel production at Ahwaz is projected to reach 1.7 million tons when the project is complete. The total project will cost over $3.5 billion. (production in 1992 was 200,000 t/year)
		WM	*MEED 21 Feb 1992*

Company	Country	Category	Description
Eurabic	Netherlands	*Libya*	Shipment of U.S. origin laser equipment for Libya's Al Fatah missile program blocked by German Customs in Dec 1991, after investigation by DTSA; Eurabic also provided
		MT, CW	software. Eurabic allegedly shipped CW precusors to Libya in 1989.
			Hamburg DPA,1/22/91 (FBIS NES 1/23/91).
John Brown Engineers	Netherlands	*Iran*	Approached in late 1987 by Iran to build a phosphorus pentasulfide factory, for 75 million guilders, based on U.S. patents from Stauffer. Project finally blocked by Dutch
		CW	government, after heavy pressure from the U.S. [Company says they withdrew for commercial reasons prior to government objections].
			Vrij Nederland 17 march 1990 (FBIS WEU 22 May)
Oragan	Netherlands	*Syria*	Negotiations underway to help build a large pharmaceuticals plant outside Damascus
			Simon Wiesenthal Center, "Weapons of Mass Destruction." Aug 1992
		CW	
Oriel	Netherlands	*Libya*	The Dutch government acknowledges that it had authorized the re-export to Libya of US laser equipment made by Oriel.
		Arms	*WP, 1/24/92*
Changgwang Credit Corp	North Korea	*Syria*	Identified by the State Department in a July 7, 1992 order imposing missile sanctions, as having sold ballistic missiles to Syria.
		MT	*Export Control News, July 30, 1992*
Chosoo Yongaksan Export-Import Company	North Korea	*North Korea*	State-run trading company used as a front to purchase computers and other controlled goods from Korean-Japanese networks.
		Nuclear	*Seoul Singdong-A, Aug 1990 (FBIS East Asia, 10/15/90)*
Lyongaksan Machineries and Equipmeot Export Corp	North Korea	*Syria*	Identified by the State Department in a July 7, 1992 order imposing missile sanctions as having sold ballistic missiles to Syria.
		MT	*Export Control News, July 30, 1992*
Pyongyang Semiconductor Manufacturing Co	North Korea	*Iran*	Supplied missile guidance components for North Korean SCUD-B and SCUD-C missiles sold to Iran. This semi-conductor plant was built with a grant from the UN
		WM	Industrial Development Organization (UNIDO).
			Jane's Soviet Intelligence Review, April 1989, Joseph Bermudez & Seth Carus
City Varvet Norsk A/S	Norway	*Iran*	CAD/CAM software and computer systems, to military shipyard for ship design and repair
		WM	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992*
Kockums Computer System A S	Norway	*Iran*	CAD/CAM software and computer systems, to military shipyard for ship design and repair
		WM	*"Weapons of Mass Destruction," Simon Wiesenthal Center August 1992*
Institute for Nuclear Sciences and Technology	Pakistan	*Iran*	31 Iranian nuclear physicists were sent for training at this state-run nuclear institute in Islamabad, Pakistan in Oct. 1988, following a secret nuclear pact signed between Iran
		Nuclear	and Pakistan.
			Mednews, 12/5/88
Nuclear Studies Institute	Pakistan	*Iran*	Iranian nuclear scientists were sent to this state-run institute in Nowlore, Pakistan, in 1988, following a secret nuclear pact between Iran and Pakistan to learn reprocessing
		Nuclear	and uranium enrichment technoogies.
			Mednews, 12/5/88
Pakistan Atomic Energy Organization	Pakistan	*Iran*	Supervised training of Iranian nuclear scientists starting in 1988 at a variety of nuclear research labs and institutes in Pakistan, to learn reprocessing and uranium
		Nuclear	enrichment technoogies
			Mednews 12/5/88
Philippines Long Distance Telephone Company	Philippines	*Iran*	Serving as intermediary for sales to Iran of satellite technology for U.S.-based companies, and under investigation by U.S. Customs for this activity
			Los Angeles Times 5/20/93

Company	Country	Category	Description
Aodre Paplorek Company	Poland	*Iran*	Serving as intermediary for the sale of Stemme S10 RPV aircraft to Iran.
		Arms	*Subcommittee documents.*
Aviaexport	Russia	*Iran*	Supply of a complete, turnkey assembly plant for local manufacture of MiG-29 fighter aircraft.
		WM	*Mednews 25/11/91*
Institute of Electric Physical Organisation	Russia	*North Korea* Nuclear	Provided technology, installation, and training of North Korean operators for a nuclear cyclotron, built in North Korea in 1992 under the auspices of the IAEA and UNDP
			Pyongyang KCNA 4/11/92
Ministry of Atomic Power and Industry (MAPI)	Russia	*Iran*	Signed March 6, 1990 protocol with Iran to build two 440 MW power reactors in Iran and help complete the Bushehr nuclear complex. Protocol initialled during trip to
		Nuclear	Tehran by Soviet Railways Minister, Nicolai Konarev.
			Nucleonics Week, 3/15/90;Defense and Foreign Affairs Weekly 3/19/90
Pavnks	Russia	*Libya*	Illegally shipped 80 tons of ammonium perchlorate for solid rocket systems to Libya, through a Serbian intermediary. Falsified export documents. Shipment detained by
		MT	Ukrainian government in June 1993.
			Export Control News 6/24/93
Spetzvoeshtechnika	Russia	*Iran*	Coordinating agency for the construction of a MiG-29 assembly plant, part of a $3 billion arms package signed in 1991; may have transferred solid propellant rocket
		Arms	technology in 1981 for katyusha rocket production at Semnan.
			Mednews 11/25/91, 3/1/93; Mednews 8/1/88
VO Oberonexport	Russia	*Iran*	Delivered 100 surface-to-surface missiles in 1993, probably the upgraded SS-21 (Tochka-U), a 120 km guided rocket with a CEP of less than 100 meters; coordinating
		MT, Arms	agency for all Russian arms sales to Iran, including Kilo-class submarines, MiG-29 Su-24, and Tu-22M Backfire bombers.
			Washington Post (Outlook section), Sept 5, 1993; Janes Defense Weekly, Sept 6 1993; Mednews 3/1/93
Bizo Electronic Company	Seychelles	*Libya*	Authorized by the French government to sell used military equipment from French nuclear weapons establishments, this company agreed to sell $620 million worth of
		Nuclear	nuclear equipment to Libya in 1980, through a Lebanese intermediary, Gabriel Tannoury
			Liberation, June 2, 1986.
Seychelles Internationnal Bank	Seychelles	*Libya*	Financial front controlled by Sasea Interirade, which used to handle payments for Project Hamid nuclear purchases from France.
		Nuclear	*Intelligence Newsletter, March 1, 1989*
Hallet Enterprises	Singapore	*Iran*	Served as procurement front for Iran for subsequent purchases 60 and 120 tons of thiodyglycol from Alcolac USA in 1987 and 1988. Customs substituted water for the
		CW	120 ton shipment on April 21, 1988.
			U.S. Court documents
Korea Power Engingeering Co (KOPEC)	South Korea	*Iran*	KOPEC sent a survey team of nuclear technicians to Iran in February 1990 to conduct feasibility study to reconstruct Bushehr.
		Nuclear	*Missile Monitor, Doc #262, Nuclear Developments, March 16, 90 The Korean Times (Seoul), March 2, 90.*
Kwang Jin Trading Co	South Korea	*Iran*	Supplying chemical weapons technology under cover of a "Cement" project in 1988-1989. U.S. equipment shipped to Seoul, then turned around without unloading.
		CW	Iran Principle Kwang Jin Joo an unindicted co-conspirator in the Kumex International case
			U.S. Court documents
Associated Enterprises of Spain	Spain	*Iran*	Signed a nuclear protocol with Iran in Feb 1990, to build two nuclear power plants at Bushehr, with the help of INI Enterprises (National Institute of Industry), ENSA, and
		Nuclear	ENUSA
			El Independiente (Madrid), 2/5/90 and 2/6/90

Company	Country	Category	Description
Empresa Nacional Santa Barbara	Spain	*Iran*	Granted permission in mid-1989 by the Spanish government to modernize an Iranian propellant and explosives factory. The project began in 1985-86 but was suspended because of Operation Staunch. Factory will produce "spheroidal" propellant developed by Santa Barbara, reportedly superior in performance to conventional types.
		MT	*"Iranian venture for Santa Barbara?," International Defense Review, April 1989, p 516*
Empresarios Agrupados	Spain	*Iran*	In negotiations with Iran's Atomic Energy Organization to work on completion of the Bushehr nuclear power plants
		Nuclear	*Nucleonics Week 11/9/89*
ENSA	Spain	*Iran*	Participating in nuclear protocol with Iran signed in Feb 1990, in tandem with Associated Enterprises of Spain.
		Nuclear	*El Independiente (Madrid), 2/5/90 and 2/6/90*
ENUSA	Spain	*Iran*	Participating in nuclear protocol with Iran signed in Feb 1990, in tandem with Associated Enterprises of Spain, member of the Eurodif consortium
		Nuclear	*El Independiente (Madrid), 2/5/90 and 2/6/90; Tribune de l'Expansion, 10/28/91*
Equipos Nucleares	Spain	*Iran*	This Siemens-licensee is trying to get subcontracts from Siemens to complete the Bushehr plants
		Nuclear	*Nucleonics Week, 2/7/91*
INI Enterprises	Spain	*Iran*	Signed a nuclear protocol with Iran in Feb 1990, to build two nuclear power plants at Bushehr, in tandem with Associated Enterprises of Spain
		Nuclear	*El Independiente (Madrid), 2/5/90 and 2/6/90*
MS Systems	Spain	*Libya*	Reports from Chile allege that arms-maker Carlos Cardoen, under indictement in the United States for his dealings with Iraq, is using this Spanish company for the sale of fuel-air explosives to Libya.
		Arms	*Santiago Domestic Service 10/15/90 (FBIS NES 10/25/90)*
Senner	Spain	*Iran*	Contracted in tandem with Degussa Switzerland to build a carbon black manufacturing facility in Saveh.
		MT	*MEED 9/23/88*
Texconsultancy and Engineering	Spain	*Iran*	Company was involved in a March 1992 attempt to smuggle Hawk, Crotale, and Sunger missiles and parts to Iran
		Arms	*Diario 16, 3/13/92*
Bofors	Sweden	*Iran*	Supplied large quantities of gunpowder for naval and land mines, supplied equipment, production plans, and tooling for a major munitions plant in Isfahan which opened in 1987
		WM	*Swedish Customs documents; Mednews 8/1/88. L'Evenement du Jeudi 23 July 1987*
FFV	Sweden	*Libya*	Parent company of Telub, which provided training to Libyan rocket scientists
		MT	John Cooley, *Libyan Sandstorm*, p 237-238
Nobel Chemie	Sweden	*Iran*	Provided technical assistance and equipment, to help rebuild Iranian weapons plants in the early 1980s
		WM	*DMS Market Intelligence report, 1984*
Scandinavia Commodities	Sweden	*Iran*	Organized the delivery of gunpower, munitions, land-mines, and the construction of a large Bofors munitions plant in Isfahan.
		WM	*Swedish Customs documents*
Strands SMG	Sweden	*Syria*	Contracted to supply unidentified equipment to CERS in May 1992
		WM	*"Weapons of Mass Destruction," Simon Wiesenthal Center August 1992; Mednews 8/17/92*
Teleplan	Sweden	*Libya*	Sent defense electronics specialists to Libya in the late 1970s, to train Libyans in guided missile techniques
		MT	John Cooley, *Libyan Sandstorm*, p 237-238

Company	Country	Category	Description
~~Telub~~	Sweden	*Libya*	Provided intensive training to 96 Libyan officers from the Military Procurement Authority in guidance systems and other defense electronics from 1977 through 1982, ~~as part of an official, but secret,~~ government agreement between Sweden and Libya signed by Olof Palme in 1974
		MT	John Cooley, *Libyan Sandstorm*, p 237-238.
Volvo	Sweden	*Iran*	Volvo took over the Mack truck (Iran Kaveh) assembly plant in 1984, and is committed to local assembly of 2,000 to 3, 000 heavy trucks/year, with direct military applications.
		MT	*IRNA 6/18/91*
Acomel	Switzerland	*Iran*	Alleged sales of frequency converters, used to control uranium enrichment centrifuges. [Acomel frequency converters were discovered in Iraq's nuclear weapons program by the IAEA].
		Nuclear	*Ma'Ariv, "Means of Destruction From Switzerland to Iran," by A. Rozen and G. Shamron, 25 June 1993 (JPRS-TND 8/19/93)*
Balmin Kommerz	Switzerland	*Iran*	Has contracted to build a steel service center with continuous galvanizing, electrolytic tinplate lines, and graphite electrode facilities, at the Mobarakeh complex.
		WM	*MEED 21 Feb 1992*
Bioengineering AG	Switzerland	*Iran*	A subsidiary of Bayer AG, this company was bombed twice in Switzerland (in Feb. 1992 and Feb. 1993), allegedly by Iranian dissidents, for having supplied fermenters and other equipment of potential use to a biological weapons program. Israeli press reports mention suspicion that the attacks were carried out by Mossad.
		BW	*Reuter, Feb 22, 1993; Al Hayat, Feb 24, 1993; Ma'ariv 6/25/93*
Bonaventure	Switzerland	*Iran*	Involved in selling weapons and dual-use nuclear technologies to both Iran and Iraq. Company official Heinz Pulmann, a former Waffen SS officer, and his partner, Bill Flo Harvey, are a well-known black market arms dealer.
		Nuclear	*Ma'ariv 6/25/93 (JPRS TND 8/19/93)*
Bruxelles-Lambert Bank	Switzerland	*Libya*	The Lugano branch helped orchestrate stock transfer fromItaly's state-owned oil company, ENI, to Libyan embassy, to finance Project Hamid, an aborted scheme to build a nuclear-tipped rocket.
		Nuclear	*Intelligence Newsletter, March 1, 1989*
Cetec	Switzerland	*Iran*	Allegedly began supplying special metal valves and high-pressure piping to a Tehran research institute, for use in uranium enrichment centrifuges, following Operation Desert Storm when similar contracts with Iraq were blocked.
		Nuclear	*Ma'Ariv, "Means of Destruction From Switzerland to Iran," by A. Rozen and G. Shamron, 25 June 1993 (JPRS-TND 8/19/93)*
Ciba Geigy	Switzerland	*Iran*	Subcontractor to Lurgi for construction of a pesticides plant near Tehran
		CW	*Der Spiegel 2/14/92*
Ciba Geigy	Switzerland	*Syria*	Major supplier to the Syrian Ministry of Defense (DIMAS) of pharmaceutical supplies and processes
		CW	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992*
Deutche Bank	Switzerland	*Libya*	Served as front for Libyan front man Gabriel-Antoine Tannoury, in his attempt to purchase $620 worth of nuclear equipment from France in 1981
		Nuclear	*Intelligence Newsletter, March 1, 1989*
FCA Contractor Co.	Switzerland	*Iran*	Supplied 500 tons of thidiglycol, a mustard gas precursor, during the Iran-Iraq war
		CW	*Ma'ariv 6/25/93 (JPRS TND 8/19/93)*
Georg Fischer	Switzerland	*Iran*	Supplied large quantities of CNC machine-tools to weapons plants controlled by the Defense Industries Organization
		WM	*DIO brochures; Mednews march 1, 1993*

Company	Country	Category	Description
Girindus SA	Switzerland	*Iran*	Owndet of Girundus Corp (US), which negouated purchase of ammonium perchlorate from Pacific Engineering, an oxydizer for solid fuel ballistic missiles.
		MT	*IHT March 29, 1989*
Inter-Commerce Trueband, Handels & Franz	Switzerland	*Iran*	Purchased large quantities of ammonium perchlorate from Pacific Engineering through Girindus, reselling it to DA Dampf, of West Germany.
		MT	*IHT March 29, 1989*
Karbas Co.	Switzerland	*Iran*	Attempted to sell a turn-key phosphorus pentasulfide plant, ostensibly for pesticides, to Iran in the late 1980s. Deal blocked after information relayed to the Swiss
		CW	authorities by U.S and Israeli intelligence.
			Ma'Ariv, "Means of Destruction From Switzerland to Iran," by A. Rozen and G Shamron, 25 June 1993 (JPRS-TND 8/19/93)
Krebs AG	Switzerland	*Iran*	Negotiated to build a pesticides plant to make phosphorous pentasulfide for Amiton, a highly toxic insecticide, forced to abandon the project in 1989 under US and Swiss
		CW	government pressure. [Iraq's first CW projects were based on purchasing Amiton-production equipment.]
			IHT May 10, 1989
MBR	Switzerland	*Iran*	Supplied a spiral biological "furnace" to Iran in early 1990s, for use in fermintation of biological agents.
		CW	*Ma'ariv 6/25/93*
Oerlikon Bührle	Switzerland	*Iran*	Provided technical assistance and equipment, to help rebuild Iranian weapons plants in the early 1980s; supplied "Skyguard" radar-controlled air defense systems and built 35
		WM	mm munitions line.
			DMS Market Intelligence report, 1984; Mednews 8/1/88
Reaine Co.	Switzerland	*Libya*	Front company domiciled in the Geneva headquarters of the Deutsche Bank that used by Libyan front man Gabriel-Antoine Tannoury to purchase $620 million worth of
		Nuclear	nuclear equipment from France in 1981.
			"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992
Sasea Intertrade Co	Switzerland	*Libya*	Front company controlled by Florio Fiorini and working with Gatth Pharaon, to sell $620 million of French nuclear equipment to Libya as part of Project Hamid
		Nuclear	*Intelligence Newsletter, March 1, 1989*
Schweizerischen Kreditanstalt	Switzerland	*Libya*	Banking services in Zurich fo Rabta contracts.
		CW	*Der Spiegel Jan 23, 1989*
Turconsult	Switzerland	*Iran*	Used as a front by Bonaventure (Switzerland) and by Jacques Toren, the vice president of the Geneva parliament, for the transfer of weapons and advanced technology to Iran
		Nuclear	and Iraq. Shares offices and phone with Bonaventure. Brokered the sale of FAE-80 bombs (fuel air explosives) from Chile to Iran.
			Ma'ariv 6/25/93 (JPRS TND 8/19/93)
Werner Elektrik	Switzerland	*Iran*	Parent company of Acomel, which is suspected of having supplied frequency converters for uranium enrichment centrifuges.
		Nuclear	*Ma'Ariv, "Means of Destruction From Switzerland to Iran," by A. Rozen and G Shamron, 25 June 1993 (JPRS-TND 8/19/93)*
Wild Heerbrugg	Switzerland	*Iran*	Supplied satellite mapping equipment, and Global Positioning System (GPS) units to the Revolutionary Guards (Ministry of Sepah); attempts to procure U.S. systems from
		MT	Magnavox rejected by the Department of Commerce in 1987 and 1988.
			Mednews 6/8/92.
GANGroup	Syria	*Syria*	Syrian investment group, run by Saeb Nahas, which is backing plants to build pharmaceuticals and chemicals plants with potential dual-use
		CW	*Tender documents [French Embassy weekly economic review, 2 Oct 1991]*

Company	Country	Category	Description
International Trade and Commerce Establishment	Syria	*Iran*	Negotiated purchase of $1.2 billion worth of Soviet weapons, including ballistic missiles, in 1986 and 1987, with some shipments originating in Syria and Libya. Run by a Palestinian intermediary, Hassan Zobeida.
		MT; Arms	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
Syrian Scientific Research Center (aka CERS)	Syria	*Syria*	Identified by the State Department in a July 7, 1992 order imposing missile sanctions, as having purchased ballistic missiles from North Korea. Research, development, and procurement arm of the Office of the President of Syria.
		MT	*Export Control News, July 30, 1992; Unconventional Weapons Proliferation (Simon Wiesenthal Report)*
U-Thai Thiemboonkit	Thailand	*Iran*	Intermediary who allegedly supplied plans of the Rabta chemicals plant ("Pharma 150") to Iran in spring 1990
		CW	*Der Spiegel 2/14/92*
W&M Limited	Thailand	*Libya*	Intermediary for sale of large tunelling machines to Libya for the Tarbuna plant by Westfalia-Becorit Industrietechnik GmbH.
		CW	*Frankfurter Allgemeine March 16, 1993*
Air Products	UK	*Iran*	Attempted to sel 45 cylinders of fluorine gas, used in uranium enrichment; license denied by UK government
		Nuclear	*BBC Panorama, March 6, 1993*
Allivane	UK	*Iran*	Supplied fuzes and propellants to Luchaire, starting in 1983, for onshipment to Iran
		Arms	*Independent on Sunday, 22 Nov 1992*
APV	UK	*Libya*	Parent company of APV Hill and Mills in Malaysia, which manufactured the eight stainless steel reactor vessels seized by Singapore on March 5, 1993 en route to Libya's Tarbuna plant.
		CW	*Alan George, "Libyan Poison Gas Deal Blocked," The Guardian, 3/22/93*
Atlas Equipment	UK	*Iran*	Contracted in 1992 to build a £300,000 machine-tool, ostensibly for a water plant, which the company believes could be used for rifling artillery barrels. Atlas and its transporter, UVM, volunteered information on the proposed sale to the BBC following a DTI ruling that they did not require a license, fearing that clearance would be cancelled later to their detriment.
		WM	*BBC Breakfast News, June 24, 1992*
AWD-Bedford	UK	*Iran*	This company will upgrade and retool an existing assemly line in Kerman to build 2,000 Bedford trucks/year. A second assembly line will be built in mid-93
		WM	*MEED 21 Feb 1992*
BMARC	UK	*Iran*	Supplied medium calibre munitions, weapons, and tooling to Iran via Singapore in mid-1980s. Subsidiary of Astra Holdings.
		Arms	*Independent on Sunday, 22 Nov 1992*
British Nuclear Fuels	UK	*Iran*	Equipment for a fluorine and hexafluoride plant, believed to have been started in 1986 The Irish branch of Leeds & Northrup is serving as the intermediary for much of the equipment purchased for this plant in the U.S. [BNF claims the DoC mistakenly entered this license request in the Iran list, whereas the plant was built in Ireland]
		Nuclear	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
British Rocket Ltd	UK	*Libya*	Negotiated with Libyan government in 1985 to sell missile technology to the Otrag program; part of the British Aerospace Dynamic Group.
		MT	*Stern Dec. 23, 1986.*
Brown Boveri Company Limited	UK	*Syria*	Supplied large scale computerized control system in 1987, for a non-existent nuclear power plant in Syria.
		Nuclear	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*

Company	Country	Category	Description
Coherent UK Ltd	UK	*Iran*	The US Commerce Department alleges that the UK subsidiary of this California laser and optics equipment manufacturer committed 14 export control violations between July 1989 and Feb 1990, including anti-Israel boycott violations and illicit exports to Iran.
		WT	*Export Control News, Oct 31, 1992*
DBI	UK	*Iran*	British Customs seized $1 million worth of jet engine parts from this company bound for Iran in Feb. 1993.
		Arms	*MEED Feb. 26, 1993*
Fisons Plc	UK	*Iran*	Upgrading of mass data storage and alarm system for Iranian hexafluoride plant. The Irish branch of Leeds & Northrup is serving as the intermediary for equipment
		Nuclear	purchased in the U.S. [BNF claims the DoC mistakenly entered this license request in the Iran list, whereas the plant was built in Ireland].
			"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.
Glasco	UK	*Syria*	Negotiations under way to help build a large pharmaceuticals plant near Damascus. Glaxco will supply process technology for contraceptive pills, heart, and ulcer
		CW	medicines
			Tender documents [French Embassy weekly economic review, 2 Oct 1991]
ICI	UK	*Iran*	Provided technical assistance and equipment, to help rebuild Iranian weapons plants in the early 1980s.
		WM	*DMS Market Intelligence report, 1984.*
International Computer Systems Ltd	UK	*Syria*	Attempted to ship VAX computers from the U.S. to the Syrian Ministry of Interior. This company was deeply involved in shipping Digital Equipment Corp computers to
		WM	Iraq in the 1980s, and is controlled by a Jordanian businessman.
			"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.
Ironbridge	UK	*Libya*	Main company owned by Ted Silkstone, who hired by Libya to recommission the Rabta plant in 1990.
		CW	*Washington times, Jan 16, 1989*
J.G. Trading	UK	*Libya*	Freight forwarders for equipment shipped to Rabta plant
		CW	*Stern Jan 12, 1989*
John Brown Engineers & Construction Ltd	UK	*Iran*	Subcontractor to Lurgi on the Qazvin pesticides plant, in a deal estimated at $37 million. Its participation was blocked in 1989 by the British government after
		CW	intense US pressure within the Australia group.
			Observer, Feb 4, 1990
Kennett Components	UK	*Syria*	Based in Sonning, this company contracted to supply unidentified equipment to CERS in May 1992
		WM	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992; Mednews 8/17/92.*
Leeds & Northrup Ltd	UK	*Iran*	Computerized training courses for Iranian technicians working in a fluorine and hexafluoride plant.[British Nuclear Fuels claims the DoC mistakenly entered this
		Nuclear	license request in the Iran list, whereas the plant was built in Ireland]
			"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.
Metalseal Southall	UK	*Syria*	Based in Ashford, this company contracted to supply unidentified equipment to CERS in May 1992
		WM	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992; Mednews 8/17/92.*
Millbank Technical Services	UK	*Iran*	British government arms sales entity, established in 1967 and owned by IMS. Supervised Chieftain sales in late 1970s and maintained spare parts and munitions
		Arms	deliveries through the 1980s
			Independent on Sunday 22 Nov 1992

Company	Country	Category	Description
MW Kellogg Co	UK	*Iran*	Construction of a $400 million urea and ammonia plant in Khorassan province, along the border with Turkmenistan, contracted in Jan 1992. Feedstock from this plant has direct applications in CW production and, according to company officials, for the manufacture of heavy water.
		CW	*MEED 21 Feb 1992; Mednews 6/8/92*
MW Kellogg Co	UK	*Syria*	In 19992, began expanding the Homa ammonia-urea plant, in conjunction with Technip. While this is a legitimate civilian facility, both its equipment and the industrial processes can be used in chemical weapons production.
		CW	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992*
Ridsdale	UK	*Libya*	Supplied unspecified equipment for the Rabta plant.
		WM	*London Sunday Times, 5 Apr 1992.*
Royal Ordnance	UK	*Iran*	Provided technical assistance and equipment, to help rebuild Iranian weapons plants in the early 1980s; supplied Chieftain tank munitions and equipment for munitions plant, but said to have ceased activities when privatized in 1987.
		WM	*DMS Market Intelligence report, 1984; Independent on Sunday, 22 Nov 1992*
Smith Klein Beecham	UK	*Syria*	Negotiations under way to help build a large pharmaceuticals plant near Damascus.
		CW	*Tender documents [French Embassy weekly economic review, 2 Oct 1991]*
Tosalex Trading	UK	*Libya*	Front company set up by Ted Silkstone of Britaio, registered in Panama with a Swiss mailing address, which received more than 1 million pounds sterling to get the Rabta steelworks and munitions plant running in 1990.
		CW	*London Sunday Times, 5 Apr 1992.*
Ihsan Barbouti International (IBI)	UK, Germany	*Libya*	Front company, run by Iraqi-born Ihsan Barbouti, with branches in the UK, Germany, and the U.S., served as prime contractor and procurement agent for the Rabta plant. IBI was also heavily involved in procurement for Iraqi weapons plants.
		CW	*Washington Times, Jan 16, 1989*
UN Industrial Development Organization (UNIDO)	UN	*North Korea*	Sponsored project to build a nuclear cyclotron in North Korea in 1992; sponsored a $2.36 million project in 1989 to purchase a CNC machine-tool plant from the USSR.
		WM	*Seoul Sin Tong-A Dec. 1990 (FBIS EAS 1/25/91)*
AAT Communications Corporation	USA	*Iran*	Attempted to supply microwave equipment to the Research and Development Group.
		WM	*Mednews 6/8/92.*
Aero Systems	USA	*Iran*	Illicit supplies of missiles and military avionics gear, via Hong Kong and Singapore. Miami-based company, investigated by US Customs; arranged shipment of Varian tubes for Hawk missiles and other equipment, including shipment seized by US Customs at JFK in 1988.
		Arms	*Miami Herald, 7/17/91; South Florida Business Journal, 1/29/90*
Alcolac	USA	*Iran*	Supplied 90 tons of thiodiglycol, a mustard gas precursor, in 1987-1988; subsequent shipments blocked.
		CW	*Court documents; US customs investigation.*
Alcolac International	USA	*Iran*	Sold 210 tons of thiodyglycol to intermediaries in Greece, Germany, and Singapore in 1987-88, who shipped it to Iran for use in mustard gas production. Final shipment of 120 tons intercepted by US Customs and replaced with water. At same time, Alcolac was making similar shipments that ended up in Iraq.
		CW	*U.S. Court documents.*
Aldrich Chemical Co	USA	*Iran*	Numerous attempts, still pending, in 1991 to ship CW precusors including phosphorous pentachloride, to the Atomic Research Organization of Iran.
		CW	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992*

Company	Country	Category	Description
Altera Corp	USA	*Syria*	Attempted to ship small quantities of electronics test equipmeot to a Syrian military research institute in 1987.
		WM	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992*
Anaconda	USA	*Iran*	Supplied equipment to the Sarcheshmeh copper complex being built by Krupp Koppers. (Iran needs large quantities of processed copper and brass for the production of artillery shells).
		WM	*MEED 24 March 1989*
Apple Computer	USA	*Iran*	Supplied computers with Department of Commerce licenses to a research unit at Amir Kabir University, associated with Iran's nuclear program.
		Nuclear	*Mednews 6/8/92; Business Week 6/17/91*
AST Research Inc	USA	*Iran*	Supplied computers and communications equipment to the Revolutionary Guards' primary campus, Sharif University, in 1990 and 1991.
		WM	*Mednews 6/8/92*
Atlantic Digital Systems & Services	USA	*Iran*	Contracted to Dor Argham Limited in Iran to supply high speed computers.
		Nuclear	*Mednews 6/8/92*
Ayres Corp	USA	*Iran*	This Albany, Ga company, owned by Fred P. Ayres, applied for a license to sell 10 crop-spraying aircraft worth $7 million in late 1992, which could be used for dumping
		Arms	CW. Ayres said a follow-on contract could involve hundreds of planes.
			"U.S. May Let Iran Buy Chemical Plant,"R. Jeffrey Smith, WP, Jan 5, 1993
Ayres Corporation	USA	*Iran*	Sought DoC approval to sell 10 crop-dusting aircraft worth $7 million in late 1992, license denied on grounds they could be used for poison gas attacks. The company had
		CW	hoped to sell hundreds of these aircraft to Iran.
			MEED, Jan. 15, 1993
Baxter International	USA	*Syria*	Contracted to build a factory to manufacture intravenous fluids for the Syrian Army, partially blocked through intervention by the U.S. anti-boycott office.
		CW	*Simon Wiesenthal Center archives*
BP America	USA	*Iran*	The US subsidiary of British Petroleum applied for a license in late 1992 to sell a $100 million acrylonitrile plant, used in manufacturing synthetic fibers, to Fibchem in
		CW	Iran. The Commerce Department favored the sale; but it was denied by the White House on Jan. 4, 1992 on the grounds that the process made CW precursor hydrogen cyanide as a byproduct.
			"U.S. May Let Iran Buy Chemical Plant,"R. Jeffrey Smith, WP, Jan 5, 1993. MEED Jan 15, 1993
Canberra Industries	USA	*Iran*	Attemptedin 1991 to ship precision instruments for nuclear engineering department of Sharif University, the Revolutionary Guards main nuclear research and procurement
		Nuclear	center.
			Mednews 6/8/92
Canberra Industries	USA	*Syria*	Shipped technical manuals and design information to Syria's Atomic Energy Commission in 1987
		Nuclear	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992*
Caspian Computer Consultants	USA	*Iran*	Assisted Reza Zandian in technical inspection of IBM supercomputers in Nov 1992, purchased for illegal export to Iran.
		MT	*OEE affadavit, 1/93;*
Dane Aircraft Inc	USA	*Iran*	Organized illicit shipments of arms and related technology from 1981-87. Four officials from this company pleaded guilty in March 1988.
		Arms	*South Florida Business News 1/29/90*
Digital Equipment Corp	USA	*Iran*	A $2 million computer to the principle research and procurement arm of the Revolutionary Guards, the Sharif Technical University; other shipments included VAX
		Nuclear	computers for use in oil well logging in Iran, contracts worth $7 million of mid-range mini computers signed as of June 1991.
			Mednews 6/8/92; Business Week 6/17/91

Company	Country	Category	Description
Earth Observation Satellite Company	USA	*Iran*	Supplied technical data for a high-tech satellite receiving station to Massud Davarinejad, deputy minister in charge of government computer procurement. The earth station was built by GE in Mardabad for the National Security Agency in the 1970s.
		WM	*Business Week 6/17/91.*
Eastman Kodak Co	USA	*Syria*	Aerial photography equipment, supplied to the Atomic Energy Commission in 1988.
		Nuclear	*Mednews 5/21/93.*
Eatoo Corporation	USA	*Syria*	Attempted in 1988 to ship electronic control equipment for machining centers run by a Syrian military research institute.
		WM	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
Faisun	USA	*Iran*	Served as procurement front for Iranian purchases of military and civilian aircraft spares during U.S. and international embargo in the early 1980s. Used intermediaries including Hercaire International Inc, of Fort Lauderdale, Fla, and exported parts from Hong Kong to Fasami Co in Tehran.
		Arms	*South Florida Business News 1/29/90*
Flanigan Mat	USA	*Iran*	Supplied $684 062 worth of computers, some for research on biological compounds and others for use in oil refineries.
		CW	*AP 5/14/92*
Fluke International Corp	USA	*Iran*	Electronic test and calibration equipment for aircraft manufacturing center in Iran.
		MT	*Mednews 6/8/92*
Girindus Corp	USA	*Iran*	U.S. chemical importer and exporter, owned by Girindus SA of Switzerland; negotiated purchase of ammonium perchlorate from Pacific Engineering, an oxydizer for solid fuel ballistic missiles. One shipment of of 286,000 pounds was seized 2/88 in Rotterdam; an earlier shipment of 40,000 lbs was seized in Belgium in 1987.
		MT	*IHT March 29, 1989*
Halcyon Data Communications	USA	*Iran*	Provided computer diagnostic equipment for digital data transmission circuits to the Iranian Research Organization.
		WM	*Mednews 6/8/92*
Hercaire International Inc	USA	*Iran*	Served as intermediary for sales of spare parts for military and civilian aircraft during the international embargo in the early 1980s.
		Arms	*South Florida Business News 1/29/90*
Hewlett Packard	USA	*Syria*	Shipped oscilloscopes to the Syrian Atomic Energy Commission in 1987; attempted to ship test equipment for the design and development of quartz oscillators and logic signal sources (of use in military radars and telemetry) to a Syrian military research institute in 1989.
		WM	*"Weapons of Mass Destruction," Simon Wiesenthal Center. August 1992.*
Honeywell	USA	*Iran*	Sold $10 million worth of computers for oil refineries, replacement parts for electronic assemblies and technical models; shipments may have reached $16 million
		WM	*AP May 14, 1992; Chicago Tribune 5/14/92*
Honeywell Bull Inc	USA	*Iran*	Sold $5 2 million in computers for a national census project, some of which were to be resold by a local distributor. Company is a joint venture between Groupe Bull of France and NEC Corp of Japan.
		WM	*AP 5/14/92*
IBM	USA	*Iran*	Sold two IBS ES 9000 computers to computer consultant Ray Amiri in California, who attempted to export them illegally to Iran in 1992 and 1993. One of the computers was seized by the Commerce Department's Office of Expot Enforcement in March. A n IBM RISC system 6000 was shipped to Iran Business Machines in Tehran without a license in 1991
		Nuclear	*Court documents.*

Company	Country	Category	Description
Imo Industries	USA	*Iran*	Parent company of Warren Pumps [qv]. Located in Lawrenceville, NJ.
		WM	*Washington Times, 4/20/91*
Iran Business Machines	USA	*Iran*	Owned by Reza Zandian; shipped an IBM RISC System 6000 supercomputer, model 520H to Iran illegally in1991; attempted to export two additional ES-9000
		MT	supercomputers illegally to Iran via France in Jan 1993.
			OEE affadavit, 1/93; LA Times Jan 5 and Jan 10, 1993
Kay Elemetrics Corp	USA	*Iran*	Contracted to sell radio spectrum analyzers to Sharif University in 1989.
		MT	*Mednews 6/8/92*
Komex International	USA	*Iran*	Conspired in 1988-1989 to sell 500 MK 94 bombs, each packed with 108 pounds of
		CW	sarin, and 500 MK 116 "Weteye" bombs, each packed with 347.5 pounds of the nerve agent, with Charles Caplan. Owner Juwhan W. Yun indicted after Customs investigation
			U.S. Court documents
Leeds & Northrup Systems	USA	*Iran*	Test equipment for data monitoring and bulk storage for a fluorine and hexafluoride plant begun in 1986. This 1990 shipment was approved by the Department of
		Nuclear	Commerce. [British Nuclear Fuels says that the DoC mistakenly entered this license request in the Iran list, whereas the plant was built in Ireland].
			"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.
Leybold Inficon Inc	USA	*Iran*	Contracted in 1990 to sell gas chromatography and analysis equipment to the plasma physics laboratory of Sharif University, the Revolutionary Guards main nuclear
		Nuclear	research and procurement center. Also contracted to sell precision measuring equipment to Sharif University.
			Mednews 6/8/92
Lucasch Corporation	USA	*Iran*	Owned by Reza Zandian; shipped an IBM RISC System 6000 supercomputer, model 520H to Iran illegally in1991; attempted to export two additional ES-9000
		MT	supercomputers illegally to Iran via France in Jan 1993.
			OEE affadavit, 1/93; LA Times Jan 5 and Jan 10, 1993
Medport	USA	*Syria*	This small, Amhurts, Ohio company offered in 1991 to take on the Baxter contract in Syria, following the intervention of the U.S. anti-boycott office.
		CW	*Simon Wiesenthal Center archives*
National Veterinary Services	USA	*Syria*	Supplied bacteria and protozoa under DoC license in 1988.
		CW	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
NCR Corporation	USA	*Iran*	Supplied Unix-based computers, software, and electronics test equipment to state-run universities and research entities associated with the Ministry of Defense and the
		WM	atomic energy organization.
			Mednews 6/8/92
Norstream Intertec Inc	USA	*Iran*	Radio spectrum analyzers, test equipment, and computer manufacturing equipment to Iran Electronics Industries
		WM	*Mednews 6/8/92*
Orient Overseas Container Line	USA	*Iran*	Shipping agent for Patron and Alcolac for thiodyglycol shipments purchased by Iran
		CW	*U.S. Court documents*
Pacific Engineering and Production Co (PEPCON)	USA	*Iran*	Manufactured large quantities of ammonium perchlorate which purchased by Iran through intermediaries in Switzerland and the US.
		MT	*IHT March 29, 1989*
Parsons-Jurden	USA	*Iran*	Supplied equipment to the Sarcheshmeh copper complex being built by Krupp Koppers (Iran needs large quantities of processed copper and brass for the production
		WM	of artillery shells)
			MEED 24 March 1989

Company	Country	Category	Description
Patron Services, Inc	USA	*Iran*	Freight forwarding agent for Alcolac for thiodyglycol shipments purchased by Iran.
			U.S. Court documents
		CW	
Perkin Elmer	USA	*Syria*	Shipped chemical analysis and electronic equipment to the Syrian Atomic Energy Commission in 1987.
		Nuclear	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
Perkin Elmer Corporation	USA	*Iran*	Attempted shipments of chemical and mineral analysis equipment to the Atomic Energy Organization of Iran (license applications rejected).
		Nuclear	*Mednews 6/8/92; DNA International Trade Daily 8/6/92*
Reactor Experiments Inc	USA	*Iran*	Licenses pending in 1991 to ship neutron shields to the Atomic Energy Organization of Iran.
		Nuclear	*Mednews, 6/8/92*
Rockwell International	USA	*Iran*	Gyroscopes, avionics, and communications gear for helicopter repair; $540,000 in transmission gear and helicopter navigation equipment.
		WM	*Mednews 6/8/92; AP, 5/14/92*
Rolm Corp	USA	*Syria*	Attempted to ship advanced digital communications switching gear to a Syrian military research institute in 1987
		WM	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
Sabre Foundation	USA	*Libya*	This Santa Barbara, CA company helped build missile test facilities for the Otrag group in the late 1970s
		MT	*Geerd Greune, "Bundesdeutsche Raketen in Zentralafrika"*
Satellite Technology Management Inc	USA	*Iran*	Contracted to sell satellite ground stations to Iran in 1991. After an export license request was denied, the company attempted to ship $1.4 million worth of Very Small
		MT	Aperture Terminal (VSAT) terminals and related equipment that was seized by U.S marshals in May 1993; its largest customer, Philippines Long distance Telephone Co. ordered a 56 million digital switching network in Jan. 1992, which may have been re-exported to Iran.
			LA Times 5/20/93
Scientific Atlanta	USA	*Iran*	Contracted to sell spare parts for microwave and satellite communications systems in 1991.
		WM	*Mednews 5/31/93*
Technicon Instruments Corp	USA	*Iran*	Large quantities of blood chemistry analytical equipment, capable of analyzing CW agents
		CW	*Mednews 6/6/92*
Tektronix	USA	*Syria*	Attempted to ship CAD/COM equipment to a Syrian military research institutes in 1987, 1988, and 1989
		WM	*"Weapons of Mass Destruction," Simon Wiesenthal Center, August 1992.*
Tektronix, Inc	USA	*Iran*	Numerous attempts to sell oscilloscopes and test equipment to various military end-users in Iran rejected by the DoC. One license for electronic test equipment
		WM	approved for sale to the Defense Industries Organization.
			Mednews 6/8/92
Terrin Associates	USA	*Iran*	Provided spare parts, service, and navigation equipment to nuclear end-users in Iran, with Department of Commerce approval; attempted to ship more than $2 million
		WM	worth of radio spectrum analyzers, oscilloscopes and other precision instruments to known military end-users including the Ghods Research Center, a part of the Iranian Ministry of Defense. Other shipments of electronics and manufacturing assemblies to Ministry of Defense manufacturing plants.
			Mednews 6/8/92

Company	Country	Category	Description
Varian Associates	USA	*Iran*	Applied to sell $59 million worth of licensed goods to various Iranian military procurement fronts, including direct sales to the Atomic Energy Organization, and delivered gas chromatography systems, oscilloscopes, and radio spectrum analyzers; Varian tubes seized at JFK airport on Nov. 6, 1988 bound for Iran.
		Nuclear	*Mednews 6/8/92; 2/18/91.*
VSAT Systems Inc	USA	*Iran*	This San Jose, Ca company is a joint venture with CEIEC of China, which is supplying radars and manufacturing equipment to Iran.
		WM	*Mednews 11/25/91*
Warren Pumps Inc	USA	*Iran*	Located in Warren, Mass, this division of Imo Industries Inc. sold special pumps to Iranian MoD worth $136,000, which could be used for manufacture of explosives.
		WM	Commerce told them they did not need a license.
			Washington Times, 4/20/91
Wild Magnavox Satellite Survey	USA	*Iran*	Supplied spare parts for satellite mapping equipment, sold by Swiss parent company, Wild Heerbrugg
		MT	*Mednews 6/8/92*
Dubno Nuclear Research Institute	USSR	*North Korea*	Sponsored nuclear exchanges between the USSR, Czechoslovakia, and North Korea in the late 1980s.
		Nuclear	*Prague CTK in English 6/29/93 (JPRS Proliferation Issues 7/7/92)*
Dvuna Institute	USSR	*North Korea*	Trained 30 North Korea nuclear engineers yearly as a result from North Korean-Soviet cooperation agreements.
		Nuclear	*Seoul Singdong-A, Aug 1990 (FBIS East Asia, 10/15/90)*
ELPA (Small Size Electric Motors Factory)	USSR	*North Korea*	Trained North Korea technicians starting in August 1979 in production techniques of ultra-small electric motors.
		Nuclear	*Seoul Sin Tong-A Dec. 1990 (FBIS EAS 1/25/91)*
Gorky Machine Tool Factory	USSR	*North Korea*	Signed a cooperation agreement with the Huichon Machine Tool Factory in North Korea in Sept. 1987, to transfer machine-tool manufacturing technology.
		WM	*Seoul Sin Tong-A Dec. 1990 (FBIS EAS 1/25/91)*
Interatomenergo Society	USSR	*North Korea*	Sponsored nuclear exchanges between the USSR, Czechoslovakia, and North Korea in the late 1980s.
		Nuclear	*Prague CTK in English 6/29/93 (JPRS Proliferation Issues 7/7/92)*
Energoinvest	Yugoslavia	*Libya*	Power substation for Rabta plant.
			Washington times, Jan 16, 1989
		CW	

1993 U.S. Total Exports of Selected Commodities to Iran

Code	Description	Quantity	Unit	Value	Licence
** Month: January					
3002905050	TOXINS, CULTURES OF MICRO-ORGANISMS AND SIM PROD	0	X	11000	GDEST
8101930000	TUNGSTEN WIRE	13	KG	10125	GDEST
8411128000	TURBOJET TURBINES,EXC A/C, THRUST EXCEEDING 25 KN	1	NO	143428	GDEST
8414809000	AIR OR VACUUM PUMPS, NESOI	0	X	9172	GDEST2
8419600000	MACHINERY FOR LIQUEFYING AIR OR OTHER GASES	3	NO	23820	GDESTIN
8421190000	CENTRIFUGES, NESOI	2	NO	11260	GDEST
8421910000	PARTS OF CENTRIFUGES, INCLUDING CENTRIFUGAL DRYERS	0	X	5926	GDEST
8466100070	TOOL HOLDERS AND SELF-OPENING DIEHEADS, NESOI	0	X	2577	GDEST
8471200030	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT,COLOR CRT	13	NO	47170	GDEST
8471200030	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT,COLOR CRT	9	NO	32000	D161419
8471200030	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT,COLOR CRT	5	NO	19195	D161419
8471200060	DIGITAL ADP MCH W CPU & INPUT/OUTPUT,CRT EXC COLOR	12	NO	42261	GDEST
8471200060	DIGITAL ADP MCH W CPU & INPUT/OUTPUT,CRT EXC COLOR	17	NO	22644	
8471200060	DIGITAL ADP MCH W CPU & INPUT/OUTPUT,CRT EXC COLOR	5	NO	18744	
8471200060	DIGITAL ADP MCH W CPU & INPUT/OUTPUT,CRT EXC COLOR	21	NO	46200	
8471200060	DIGITAL ADP MCH W CPU & INPUT/OUTPUT,CRT EXC COLOR	21	NO	31205	GDEST68
8471200060	DIGITAL ADP MCH W CPU & INPUT/OUTPUT,CRT EXC COLOR	3	NO	21158	GDEST6
8471200060	DIGITAL ADP MCH W CPU & INPUT/OUTPUT,CRT EXC COLOR	4	NO	12432	
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	1	NO	2695	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	12	NO	38590	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	10	NO	33737	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	4	NO	14600	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	2	NO	7112	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	17	NO	56674	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	1	NO	3500	GDEST
9014900000	PTS, FOR DIRECT FIND COMPASSES, NAVIGATIONAL INST	0	X	32498	
9027304080	ELEC SPECTROMETERS & SPECTROGRAPHS ETC., OPT RADTN	1	NO	15340	GDEST
** Subtotal **					
		177		715063	
** Month: February					
3602000060	PREPARED EXPLOSIVES, EXC PROPELLANT POWDERS, NESOI	117	KG	8669	EXPD132016EX
8421390040	GAS SEPARATION EQUIPMENT	3	NO	152000	
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119205	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119205	GDEST

1993 U.S. Total Exports of Selected Commodities to Iran

Code	Description	Quantity	Unit	Value	Licence
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119205	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119205	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119205	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119205	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119205	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119205	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119205	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119205	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST

1993 U.S. Total Exports of Selected Commodities to Iran

Code	Description	Quantity	Unit	Value	Licence
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119205	GDEST
8429200000	GRADERS AND LEVELERS, SELF-PROPELLED	1	NO	119204	GDEST
8462910030	HYDRAULIC PRESSES, METAL FORMING, USED OR REBUILT	1	NO	291429	GDEST
8462910090	HYDRAULIC PRESSES, METAL FORMING, EXCEPT N/C, NEW	1	NO	2874000	GDEST
8471200030	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT,COLOR CRT	5	NO	17290	GDEST
8471200060	DIGITAL ADP MCH W CPU & INPUT/OUTPUT,CRT EXC COLOR	1	NO	3412	2G-DEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	7	NO	24579	GFEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	1	NO	907500	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	4	NO	11962	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	2	NO	5978	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	9	NO	29152	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	2	NO	5330	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	4	NO	11733	GDEST
8705900000	SPECIAL PURPOSE VEHICLES, NESOI	1	NO	531492	GDEST
8716100075	TRAILERS AND SEMI-TRAILERS FOR HOUSING 10.6M, MORE	2	NO	480000	DGEST
9027304040	SPECTROPHOTOMETERS USING OPTICAL RAD NONELECTRICAL	5	NO	12983	GDEST
9030100000	INST FOR MEASURING/DETECTING IONIZING RADIATIONS	7	NO	7990	GDEST
** Subtotal **		236		13004566	
** Month: March					
3002905050	TOXINS, CULTURES OF MICRO-ORGANISMS AND SIM PROD	0	X	11050	GDEST
3602000030	DYNAMITE IN CARTRIDGES SUITABLE FOR BLASTING	698	KG	39588	D132016
3602000030	DYNAMITE IN CARTRIDGES SUITABLE FOR BLASTING	36	KG	2700	GDEST
3603000000	SAFETY FUSES, DETONATING FUSE, PERCUSSION CAPS ETC	296	THS	28145	GDEST
8411128000	TURBOJET TURBINES,EXC A/C, THRUST EXCEEDING 25 KN	8	NO	55600	GDEST
8426410090	LIFTING MACHINERY, SELF-PROPELLED, ON TIRES, NESOI	1	NO	103851	DGEST
8429521050	EXCAVATORS WITH 360 REVOL SUPERSTRUCTURE,NEW,REBLT	6	NO	108150	DGEST
8471200030	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT,COLOR CRT	10	NO	33585	GDEST
8471200030	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT,COLOR CRT	1	NO	3600	GDEST
8471200030	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT,COLOR CRT	1	NO	3795	4
8471200060	DIGITAL ADP MCH W CPU & INPUT/OUTPUT,CRT EXC COLOR	7	NO	23400	GDEST
8471200060	DIGITAL ADP MCH W CPU & INPUT/OUTPUT,CRT EXC COLOR	14	NO	48500	GDEST
8471200060	DIGITAL ADP MCH W CPU & INPUT/OUTPUT,CRT EXC COLOR	6	NO	19858	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	3	NO	9609	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	4	NO	14699	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	1	NO	2772	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	6	NO	19520	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	1	NO	101580	GDESTGTDUGNN
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	14	NO	47525	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	4	NO	11900	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	2	NO	5844	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	23	NO	76040	
8502300000	GENERATING SETS, ELC, NESOI	4	NO	49492723	GDEST
8705900000	SPECIAL PURPOSE VEHICLES, NESOI	2	NO	104450	GDEST
9027304040	SPECTROPHOTOMETERS USING OPTICAL RAD NONELECTRICAL	22	NO	55454	GDEST

1993 U.S. Total Exports of Selected Commodities to Iran

Code	Description	Quantity	Unit	Value	Licence
9027304040	SPECTROPHOTOMETERS USING OPTICAL RAD NONELECTRICAL	5	NO	12820	GDEST
9027304040	SPECTROPHOTOMETERS USING OPTICAL RAD NONELECTRICAL	1	NO	5350	GDEST
9027304040	SPECTROPHOTOMETERS USING OPTICAL RAD NONELECTRICAL	2	NO	5534	GDEST
9027304080	ELEC SPECTROMETERS & SPECTROGRAPHS ETC., OPT RADTN	46	NO	170000	
9027304080	ELEC SPECTROMETERS & SPECTROGRAPHS ETC., OPT RADTN	1	NO	4715	GDEST
9027308080	SPECTROMETERS & SPECTROGRAPH,OPT RAD,NONELEC,NESOI	88	NO	90169	GDESTGTDU
9030100000	INST FOR MEASURING/DETECTING IONIZING RADIATIONS	1	NO	6275	GDEST
** Subtotal **					
		1314		50718801	
** Month: April					
8413702090	CENTRIFUGAL PUMPS FOR LIQUIDS, NESOI	6	NO	41227	GDEST
8417800000	IND OR LAB FURNACES & OVENS, INC INCIN,N/ELE,NESOI	1	NO	9775	GDEST
8417900000	PARTS OF IND OR LAB FURN & OVEN,INCINERAT, NONELEC	0	X	21216	2G-DEST
8426410090	LIFTING MACHINERY, SELF-PROPELLED, ON TIRES, NESOI	1	NO	108517	DGEST
8471200030	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT,COLOR CRT	9	NO	32520	GLV
8471200060	DIGITAL ADP MCH W CPU & INPUT/OUTPUT,CRT EXC COLOR	18	NO	62754	GDEST125
8471200060	DIGITAL ADP MCH W CPU & INPUT/OUTPUT,CRT EXC COLOR	1	NO	3822	GDEST
8471200060	DIGITAL ADP MCH W CPU & INPUT/OUTPUT,CRT EXC COLOR	41	NO	145155	
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	1	NO	6500	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	1	NO	15000	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	1	NO	7750	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	11	NO	36475	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	1	NO	9750	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	1	NO	3650	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	1	NO	7750	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	1	NO	7750	GDEST
9027304040	SPECTROPHOTOMETERS USING OPTICAL RAD NONELECTRICAL	3	NO	9775	GDEST
9027304080	ELEC SPECTROMETERS & SPECTROGRAPHS ETC., OPT RADTN	10	NO	128239	GDEST
9027308080	SPECTROMETERS & SPECTROGRAPH,OPT RAD,NONELEC,NESOI	6	NO	18050	GDEST
** Subtotal **					
		114		675675	
** Month: May					
2710003080	OTHER LUBRICATING OILS (EXCEPT GREASES)	100	BBL	36084	DGEST
8207125000	OTHER ROCK DRILLING OR EARTH BORING TOOLS & PARTS	0	X	14100	GDEST
8411828000	GAS TURBINE ENG,EXC A/C,NESOI, POWER EXCEED 5,000K	1	NO	37500000	GDEST
8411828000	GAS TURBINE ENG,EXC A/C,NESOI, POWER EXCEED 5,000K	2	NO	75000000	GDEST
8414100000	VACUUM PUMPS	25	NO	7083	GDEST
8466300000	MACHINES AS SPECIAL ATTACHMENTS FOR MACHINE TOOLS	0	X	75000	GDEST
8466930000	PARTS OF METALWORKING MACH TOOLS FOR CUTTING GEARS	177	KG	9259	GDEST
8471200030	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT,COLOR CRT	6	NO	19610	GLV
8471200060	DIGITAL ADP MCH W CPU & INPUT/OUTPUT,CRT EXC COLOR	70	NO	105000	GDEST
8471200060	DIGITAL ADP MCH W CPU & INPUT/OUTPUT,CRT EXC COLOR	12	NO	43685	GDEST64
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	12	NO	52028	IVLD167882
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	17	NO	40030	GDEST
8479908570	PARTS OF MACH F PROD & ASSEM OF SEMICONDUCTORS	0	X	14190	GDEST3
9027304080	ELEC SPECTROMETERS & SPECTROGRAPHS ETC., OPT RADTN	17	NO	30500	GDESTGTDU

1993 U.S. Total Exports of Selected Commodities to Iran

Code	Description	Quantity	Unit	Value	Licence
9027304080	ELEC SPECTROMETERS & SPECTROGRAPHS ETC., OPT RADTN	1	NO	3451	GDEST
9027304080	ELEC SPECTROMETERS & SPECTROGRAPHS ETC., OPT RADTN	1	NO	16258	GDEST
9027308080	SPECTROMETERS & SPECTROGRAPH,OPT RAD,NONELEC,NESOI	1	NO	8864	GDEST
9030100000	INST FOR MEASURING/DETECTING IONIZING RADIATIONS	1	NO	3170	GDEST
** Subtotal **					
		443		112978312	
** Month: June					
8414809000	AIR OR VACUUM PUMPS, NESOI	0	X	6755	GDEST
8421390040	GAS SEPARATION EQUIPMENT	3	NO	152000	
8466933000	PARTS OF METALWORKING MACH TOOLS FOR CUTTING GEARS	55	KG	6746	GDEST
8471200090	DIGITAL ADP MCH W CPU & INPUT/OUTPUT UNT, W/O CRT	14	NO	45400	GDEST
9027304040	SPECTROPHOTOMETERS USING OPTICAL RAD NONELECTRICAL	1	NO	3119	GDEST
9027304080	ELEC SPECTROMETERS & SPECTROGRAPHS ETC., OPT RADTN	2	NO	54510	GDEST
9027304080	ELEC SPECTROMETERS & SPECTROGRAPHS ETC., OPT RADTN	1	NO	35600	GDEST
9027304080	ELEC SPECTROMETERS & SPECTROGRAPHS ETC., OPT RADTN	18	NO	65330	GDEST
9027308020	SPECTROSCOPES USING OPTICAL RADIATIONS, NONELEC	1	NO	23833	GDEST
9030100000	INST FOR MEASURING/DETECTING IONIZING RADIATIONS	1	NO	173818	DGEST
9030200000	CATHODE-RAY OSCILLOSCOPES&CATHODE-RAY OSCILLOGRAPH	1	NO	8500	GDEST
** Subtotal **					
		97		575611	
*** Total ***					
				178668028	

Exports to Iran from OECD Countries 1989-1992 (millions of US Dollars)

Source: OECD Monthly statistics
Compiled by the Subcommittee on International Security, International Organizations and Human Rights

Country	*1989*	*1990*	*1991*	*1992*	*1993 (6 5months)*
Germany	112.1	218.2	4,065.6	5,102.4	
Japan	76.9	134.8	2,473.2	2,650.8	
Italy	48.9	97.8	1,828.8	2,047.2	
Great Britain	35.1	56.9	902.4	1,005.6	
France	29.5	49.7	892.8	746.4	
United States	5.0	13.9	526.8	747.6	362.8

TRADE WITH IRAN

OFFICE OF THE NEAR EAST, DECEMBER 1992

U.S. Trade Sanctions

Federal government controls currently in place on U.S. trade with Iran were initiated in January 1984, when Iran was designated a state supporting international terrorism. Under the authority of the Export Administration Act of 1979, foreign policy export controls were imposed on Iran to cover items such as: aircraft, helicopters and related parts and components; marine outboard engines; chemical weapons; crime control items; and all goods and technical data subject to national security controls if destined to a military end-user or for military end-use.

As a result of the Iran-Iraq Non-Proliferation Act passed by Congress and signed by the President on October 23, 1992, all goods exported to Iran that require a validated export license will be subject on application to a policy of denial. This does not affect general license goods.

EXPORT CONTROLS

Specific items which will be subject on application to a policy of denial:

All national security items
All CBW proliferation items
All missile technology items
All nuclear control items
All military-related items
Crime control and detection equipment
Aircraft, including helicopters, engines and parts
Heavy duty on-highway tractors
Off-highway wheeled tractors (over tons)
Cryptographic, cryptoanalytic, and cryptologic equipment
Navigation, direction finding and radar equipment
Electronic test equipment
Mobile communications equipment
Acoustic underwater detection equipment
Vessels and boats (including inflatable boats)
Underwater photographic equipment
Submersible systems
CNC Machine tools
Vibration test equipment
Certain digital computers (over 6 MTOPS)
Certain telecommunications transmission equipment (including packet switches)
Certain microprocessors (clock speed over 25 MHZ)
Certain semiconductor manufacturing equipment
Software specially designed for CAD/CAM IC production
Software specially designed for air traffic control applications
Gravity meters (static accuracy less than 100 microgal or with quartz element)
Certain magnetometers with sensitivity less than 1.0 NT RMS per root hertz
Certain fluorocarbon compounds for cooling fluids for radar and superconductors
High strength organic and inorganic fibers
Certain machines for gear cutting up to 1.25 meters
Certain aircraft skin and spar milling machines
Certain manual dimensional inspection machines (linear positioning accuracy plus/minus 3 1/300)
Robots employing feedback information in real time
Large diesel engines
Portable electric power generators
Scuba gear and pressurized aircraft breathing equipment

A general policy of denial applies to items which would contribute to nuclear, chemical/biological weapons (CBW), or missile programs; aircraft-related items; and items first controlled in 1987 for foreign policy reasons.

License applications for other items controlled for foreign policy reasons will carry a presumption of denial for military end-users and end-uses.

Further information regarding U.S. export controls on Iran, as well as U.S. export licensing policy as it applies to a specific product or service, is available from the Commerce Department's Bureau of Export Administration at (202) 482-4811.

IMPORT CONTROLS

The importation of Iranian goods and services was prohibited by Executive Order 12613 of October 27, 1987.

In February 1991, the United States and Iran concluded a bilateral agreement allowing for a very limited lifting of the embargo on imports. The agreement permits the case by case licensing of Iranian-origin petroleum imports if related to resolution or settlement of before the Iran-U.S. Claims Tribunal in The Hague or if the proceeds are to be otherwise deposited in the Tribunal's security account.

Additionally, Iranian publications intended for the news purposes may be imported, and mail may be received from Iran.

Further information concerning U.S. import controls on Iran is available from the Treasury Department's Office of Foreign Assets Control at (202) 622-2520.

STATE DEPARTMENT TRAVEL ADVISORY

The U.S. Department of State continues to advise U.S. citizens to avoid travel to Iran. Since the advent of a cease fire between Iran and Iraq in 1988, wartime conditions no longer prevail in Iran.

Despite this, tension between the two countries continues. Travel to Iran also continues to be dangerous because of the often anti-American policies of the Iranian Government. In the past, American citizens and other foreign nationals have been arbitrarily arrested, detained, or harassed by Iranian authorities. Moreover, Iran continues to support international terrorism directed against U.S. citizens.

Further information on our relations with Iran may be obtained from the State Department at (202) 647-6111; travel information from the Travel Advisory Office at State at (202) 647-5225; and travel information from the Commerce Department Country Specialist at (202) 482-1860.

GROWING AMERICAN EXPORTS

Recently,Iranian buyers have increased purchases from American suppliers. *U.S. exports jumped from $166 million in 1990 to $527 million in 1991 to $780 million in 1992.* This dramatic rise reflects a growing Iranian interest in ties with Western and U.S. business. These figures should not obscure the fact, however, that U.S. export controls on Iran and the U.S. embargo on importation of Iranian goods and services remain firmly in place.

Major U.S. exports to Iran include oil drilling and spare parts for machinery.

TRADE POLICY REFORMS

Recent Iranian reforms in trade policy have focused on simplifying and reducing current requirements. In addition, Iran is now engaged in talks to join the GATT and expects to revise its tariff system to conform with GATT rules.

EXPORTS

Iranian regulations governing non-oil exports have been liberalized. The Iranian Government now requires only a general export registration, rather than an export license. In the past, the Iranian Government determined the amount that could be exported based largely on the creditworthiness of the exporter. this requirement was eliminated on January 21, 1991.

IMPORTS

Iranian regulations governing imports have also been liberalized. Previously, all imports were required to be authorized by the Ministry of Commerce before being registered by authorized banks. I addition, a foreign exchange allocation had to be made by the Ministry concerned, and most imports required the prior approval of the relevant procurement and distribution organizations. Effective January 21, 1991, a private importer no longer needs a specific import license, foreign exchange authorization, approval by official angencies. Only a general license, issued by the Ministry of Commerce, is required to undertake such imports.

DEVELOPMENTS IN IRAN

CREDIT PROBLEMS

The Iranian Government recently has had trouble meeting its obligations regarding standard Iranian letters of credit. Many banks are now refusing to discount Ira-

nian letters of credit or finance Iranian garde. American exporters should be cautious concerning terms and conditions of payment from Iranian entities.

DEVELOPMENT PLAN MOVING AHEAD

The $320 billion 5 year (1989-93) development plan should provide a major source of reconstruction funding for the economy. Development of the offshore Pars gas field, for example, has been allocated to build four substantial dams on several rivers. The National Petrochemical Company (NPC) has received a $2.2 billion allocation for expansion; $1.5 billion has been earmarked for the Haft Tappeh sugar cane agro-industrial complex.

FREE TRADE ISLANDS

Iran has announced its intention to develop several islands in the Gulf as free trade and industrial zones. Substantial funds have already been devoted to beginning this program on Qeshm and Kish. The former, a large island in the strait of Hormuz, will be a free trade and industrial zone; the latter, a small island in the center of the Gulf, will be more trade-oriented. The Kish Island Development Organization (KIDO) hopes to create a trade center rivaling Dubai's extremely successful Jebel Ali.

Rebuttal Statement from the Department of Commerce, Bureau of Export Administration

IRAN FACT SHEET

On September 14, 1993, the House Foreign Affairs' Subcommittee on International Security, International Organizations and Human Rights held a hearing on the activities of Iran, Syria, Libya, and North Korea in attempting to acquire weapons of mass destruction. During the course of the hearing, several inaccurate or misleading statements were made about the export control program of the U.S. Department of Commerce that need to be corrected.

Licenses for Exports to Iran

The Iran-Iraq Nonproliferation Act, part of the National Defense Authorization Act of 1992, requires the denial of all validated export licenses for items controlled to Iran for reasons of national security, nonproliferation, or foreign policy purposes. The Department of Commerce has issued no export license for sales to Iran contrary to that Act. In fact, with the exception of a few transactions covered by statutory contract sanctity provisions, the Commerce Department has issued no export licenses for sales to Iran since the effective date of this statute, October 23, 1992.

The few export licenses issued due to contract sanctity were closely examined by the Departments of Defense, State, Energy, the Arms Control and Disarmament Agency, or the intelligence community, as appropriate, to ensure that approval would not compromise U.S. interests. To assure that contract sanctity existed consistent with the terms of the law, each contract was carefully reviewed by the Office of General Counsel.

G-DEST Exports

Many low-level U.S. manufactured items do not require a validated license to be exported to Iran, and the National Defense Authorization Act of 1992 permits such exports. These include nonstrategic commercial items such as: general industrial products, construction materials, electric power equipment, medical equipment, and unsophisticated data processing machines. These items may be shipped to Iran under a general license authorization, known as G-DEST. Because these items do not pose a threat to U.S. interests, no review by the U.S. Government, including the Department of Commerce, is required prior to their shipment, unless the exporter knows or has reason to know that they will be used improperly in the development of weapons of mass destruction.

Increase in G-DEST Shipments to Iran

The hearing noted an increase in the percentage volume of G-DEST shipments to Iran in 1993. This is consistent with the NDAA since no validated licenses have been issued since October 23, except in performance of a preexisting contract. The fact that the percentage volume of G-DEST shipments to Iran has increased recently is a reflection that the only remaining trade with Iran is in these low level G-DEST items. One cannot properly conclude from these facts that U.S. companies are illegally exporting controlled items to Iran.

Allegations of Potential Violations

In the course of the September 14 hearing, it was implied that U.S. exporters were violating the law by shipping items to Iran under G-DEST that should have required a validated license (which would have been denied under the provisions of the law). Information obtained from Shippers' Export Declarations (SED) for several recent G-DEST shipments to Iran were cited in support of this allegation. Because of the broad nature of information on shipping documents, containing few technical or engineering details, it is impossible to ascertain from SEDs if the G-DEST authorization has been improperly used. In order to resolve any questions, however, Commerce officials have contacted the exporters and reviewed the appropriate technical specifications of these transactions.

In one case, it was alleged that the shipment of a "high-tech" $907,500 computer had been improperly sent to Iran under G-DEST. Export enforcement agents contacted the company and verified the G-DEST classification of the computer -- a machine that is at least two generations old. It is similar to an old IBM 286 personal computer no longer available even at the corner discount computer store. These types of old, low level computers can be legally sold to Iran under the law. The reason the price was so high was that the computer was attached to a well logging system used in the oil and gas industry for measuring oil and gas wells. Such well logging equipment is also legally exportable to Iran under G-DEST.

In another case, centrifuge parts were mentioned as a possible violation. Upon investigation, it was discovered that these centrifuge parts turn out to be centrifugal pumps commonly used in the oil industry. The turbojet engines mentioned are gas turbines used in electric power generation.

Commerce enforcement and licensing officials are continuing to investigate the cited exports for any improper use of G-DEST, and will take appropriate action if any illegal activity has occurred.

Commerce Department Policy

Statements were made at the September 14 hearing charging the Commerce Department with turning a blind eye to shipments to Iran and adopting a "Don't Ask, Don't Tell" policy. This is simply not true. While consistently following the requirements of the law, the Commerce Department has undertaken aggressive and effective enforcement actions against those who attempt to violate restrictions on trade with Iran.

Commerce currently has 165 active investigations focused on shipments to Iran alone. It has recently completed major investigative actions against those attempting to ship items to Iran illegally. In one instance, a $2 million mainframe computer was stopped before it could be shipped, and the principals of the company were arrested. In a second case, telecommunications equipment destined for Iran with potential military applications was detained by Commerce before it could be exported. One of the principals was imprisoned and another is a fugitive currently believed to be in Iran.

The Commerce Department takes its obligations seriously with respect to carrying out the provisions of the export control laws and preventing illegal shipments to Iran. Commerce will continue to closely monitor G-DEST shipments to ensure that violations do not go undetected.

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