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Nonproliferation Center

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# The Weapons Proliferation Threat

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## Scope Note

This paper was prepared by the Nonproliferation Center. It was drawn from Intelligence Community-coordinated unclassified material from the 1994 Annual Nonproliferation Report to the US Congress and from recent testimonies before Congress by senior Intelligence Community officials.

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# The Weapons Proliferation Threat

## Introduction

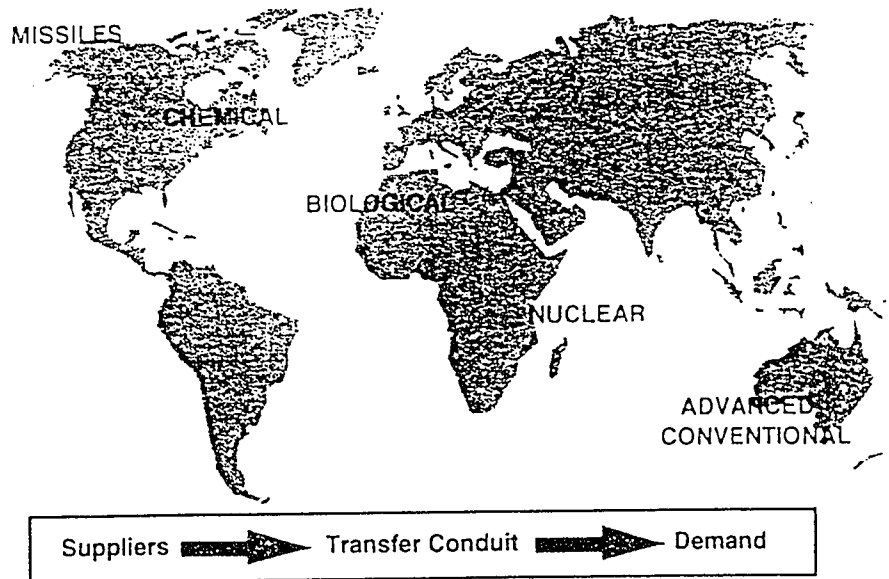
Few international dangers confronting the United States have more serious and far-reaching implications for national security and worldwide stability than the proliferation of weapons of mass destruction (WMD).

The legendary Chinese master of military strategy, Sun Tzu, is reported to have said that the best method of preserving security is to avoid direct battle and instead attack the enemy's plans and strategies. That, in essence, is a fundamental principle of the nonproliferation policy of the United States. If we can determine and understand the plans and intentions of would-be proliferators of weapons of mass destruction, and then frustrate those plans before they reach fruition, we will have preserved the security of our nation without having to confront the devastating power of the weapons themselves.

The proliferation of WMD is a global problem that cuts across geographic, political, and technological lines. It involves some of the largest and smallest, richest and poorest countries led by some of the most reactionary and unstable regimes. Many potential proliferators are convinced that they need to develop WMD and associated delivery systems to protect their national security.

## Proliferation -- A Global Problem

Geographically, Technologically, and Politically



Many of the technologies associated with WMD programs have legitimate civilian or military applications unrelated to WMD. This paradox makes it difficult to restrict trade in those technologies because developing nations have legitimate needs for them. For example, chemicals used to make nerve agents are also used to make plastics and to process foodstuffs. A modern pharmaceutical industry could produce biological warfare agents as easily as vaccines and antibiotics. And much of the technology needed for a ballistic missile program is the same as that needed for a space launch vehicle program. As potential proliferating countries' economies improve and their industrial bases mature, however, their dependence on foreign technologies necessary for WMD will be reduced, making early detection and interdiction of new programs increasingly difficult.

At least 20 countries—nearly half of them in the Middle East and South Asia—already have or may be developing weapons of mass destruction and ballistic missile delivery systems. Five countries—North Korea, Iran, Iraq, Libya, and Syria (see country profiles, Annex A)—pose the greatest threat because of the aggressive nature of their WMD programs. All five already have or are developing ballistic missiles that could threaten US interests.

Some of these countries also reexport newly acquired and newly developed technologies or equipment to third countries. Worsening economic conditions and the lure of lucrative foreign sales will encourage other states or firms to engage in WMD-related technology transfers. To these technical and economic reasons, you need only add the political, territorial, and ideological ambitions present in the Middle East to understand the rapid increase in the number of WMD programs in the region. In recent years, an even more troubling issue—the potential for smuggling nuclear weapons or nuclear-related material from the former Soviet Union—has contributed to the growing proliferation problem.

## **Ballistic Missiles**

The spread of ballistic missile systems and missile production technology is a global problem. Developing states in the Middle East, South Asia, East Asia, Latin and South America either possess or have the intent to acquire ballistic missiles, with the object of deploying and, in some cases, marketing these systems. The most concentrated area of proliferation is centered in the Middle East, where Iran, Iraq, Israel, Syria, Egypt, Saudi Arabia, and Libya all possess ballistic missiles.

The widening market for ballistic missiles and missile-related technologies over the past two decades has contributed to an increase in the types and number of suppliers. The growing list of suppliers includes organizations in China, North Korea, the industrialized states in Europe and South America, and in several Third World countries. Private consortiums are also among the suppliers of missile components and technologies. Iraq was able to establish its ballistic missile program through such suppliers.

Currently, only Chinese and Russian forces have the capability to strike the continental United States with land-based ballistic missiles. However, several countries are developing ballistic missiles that will have sufficient range to threaten Europe, Japan, and other US allies and US forces abroad. These missiles can be adapted to carry nuclear, biological, or chemical warheads. Possession of these missiles by potentially hostile countries will complicate US regional security concerns.

- Several countries have missiles *now* that could carry nuclear warheads; others are likely to have them soon. And if any one of these countries acquires even a few nuclear warheads, it would soon become an international threat.
- Most of the major countries in the Middle East have chemical weapons programs, and some have stockpiled weapons that could be used on short notice against civilians or poorly defended military targets.
- Most countries have not yet equipped their ballistic missiles to carry weapons of mass destruction, but over the next decade, many countries will—from North Africa through South Asia—if international efforts fail to curtail them.
- China and North Korea have already sold missiles to countries in the Middle East, and could sell longer-range versions and the technology to produce them. In that event, countries with existing special weapons programs will take on new, more ominous significance.

### Cruise Missiles

Currently, only Russia can threaten the United States with land-attack cruise missiles; specifically the AS-15 air-launched cruise missile carried by the Bear H and Blackjack bombers, and the SS-N-21 submarine-launched cruise missile. Russian President Boris Yel'tsin, however, has claimed that SS-N-21s are no longer deployed on operational submarines.

Other countries are unlikely to develop the capability to directly threaten the United States with a substantial cruise-missile-based attack within the next decade. However, a number of countries will be able to threaten US interests abroad with these weapons within that time frame. Currently, land-attack cruise missile developments are under way in at least a dozen countries; many could be deployed by the year 2005. These programs vary in their level of sophistication and development, from the modification of existing systems, to the conversion of unmanned aerial vehicles for an attack role, to indigenous development of cruise missiles. A number of these countries will be either willing to export complete systems or to sell component technologies and development expertise to interested partners.

## Chemical Weapons

A number of states continue to pursue the development or enhancement of a chemical weapons (CW) capability. Some states have chosen to pursue a CW capability because of the relatively low cost of—and low technology required for—CW production. Moreover, they believe that a CW capability can serve as both a deterrent to enemy attack and as an enhancement of their offensive military capabilities. Currently, at least 15 countries have an offensive CW program at some level of development. The most aggressive CW programs are in Iran, Libya, and Syria.

CW proliferation will continue to be a serious threat for at least the remainder of the decade, despite a number of arms control efforts, such as the Chemical Weapons Convention (CWC). Several countries of proliferation concern—including Libya,

camouflage the production of large quantities of BW agents.

To counter the BW threat and protect legitimate biotechnology research interests, Australia Group members, including the United States, have adopted harmonized export controls on biological pathogens, toxins, and dual-use equipment. At the Biological and Toxin Weapons Convention (BWC) Special Conference, held in Geneva in September 1994, the US promoted the development of a legally binding instrument providing increased transparency of activities and facilities that could have biological weapons applications in order to help deter violations of, and enhance compliance with, the BWC.



## Nuclear Weapons

US nuclear nonproliferation efforts were rewarded in 1994 and 1995 by the accession of new states to the Nuclear Nonproliferation Treaty, bringing the number of signatories to 172. Argentina is expected to sign the NPT sometime this year. In addition, after several months of sensitive negotiations, the United States purchased from Kazakhstan, and brought to Oak Ridge, Tennessee, for storage, 600 kilograms of highly-enriched uranium. As a result, that material is unavailable to nuclear traffickers and proliferating states.

Potential flashpoints remain, however. India, Pakistan, and several countries in the Middle East continue to refuse to join the NPT. China also remains an area of concern. Although Beijing has adhered to the NPT and requires IAEA safeguards on its exports, it has not adopted the export policies of the Nuclear Suppliers Group (NSG). Moreover, some Chinese firms continue to sell nuclear energy and research-related equipment to countries that have nuclear weapons programs.

The demise of the former Soviet Union created a number of potential proliferation problems for the United States and its allies. Illicit trafficking in nuclear materials has increased dramatically in the past few years, primarily in Germany and Eastern Europe. Although the vast majority of the incidents reported thus far have been scams or involved materials of no proliferation concern, a few instances since mid-1994 have involved actual nuclear-weapons-usable materials.

Incidents thus far have involved individuals or groups who apparently have acquired nuclear material through opportunistic access, rather than by specifically targeting facilities and materials. Security at nuclear-weapons-related facilities in Russia remains fairly stringent, but security at research facilities—from which most of the materials appear to have come—is much more lax. Material control and accountability at many facilities are poor.

The involvement of organized crime groups with sophisticated operations in nuclear materials trafficking would significantly increase the potential for significant weapons materials transfers to countries of proliferation concern. Efforts by such countries to target facilities or groups with access to nuclear materials would increase US and international concern over potential material transfers.

None of the incidents to date have involved enough nuclear material to produce a weapon, but the recent trend toward incidents involving larger quantities of material is disturbing. Analysis of technical data on all the incidents involving weapons-usable materials indicates they probably originated from research-oriented activities rather than from weapons activities.

## Advanced Conventional Weapons

The proliferation of advanced weapons as well as such technologies as stealth, propulsion, sensors, and materials is accelerating military modernization in many areas of the world. The acquisition of advanced conventional weapons and technologies by hostile countries could result in significant casualties being inflicted on US forces or regional allies in future conflicts. Purchases of advanced conventional weapons also have the potential to rapidly change military capabilities in a region and may have threat implications that extend outside of the region.

- Iran, for example, took delivery of its second Kilo-class submarine from Russia last year, and may receive a third sometime this year. Several states in the Persian Gulf region have begun looking for antisubmarine warfare (ASW) weapons and platforms to counter Iran's submarines.
- The inclusion of submarine-launched cruise missiles, including the Exocet, probably was crucial to Pakistan's recent purchase of three French submarines. India, in response to Pakistan's acquisition of a submarine-launched Exocet, has indicated its desire to purchase a comparable system.

Growing global access to technologies and expertise, including dual-use technologies, to support weapons development will make it difficult to effectively control the spread of advanced weapon capabilities. Moreover, as countries' reliance on exports to maintain their defense industrial base grows, pressures will increase to export advanced conventional weapons and technologies to remain competitive with the United States in the world's arms market.

The US Intelligence Community response to the proliferation of advanced conventional weapons and technologies has been three-fold:

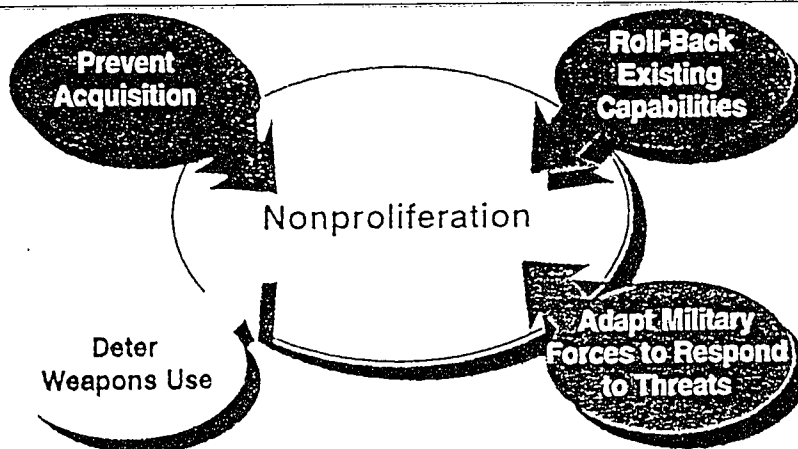
- Improving collection against both the buyers and sellers of advanced conventional weapons and associated technologies.
- Expanding threat analysis to include assessments of the potential threat to US forces from Third World forces that have acquired advanced conventional weapons and technologies.
- Examining more closely likely scenarios for future regional conflicts and countermeasure development for specific weapon systems.

## Counterproliferation Efforts

US efforts to curb the spread of WMD, missile delivery systems, and advanced conventional weapons address four aspects:

- Preventing acquisition.
- Capping or rolling back existing programs.
- Deterring use of WMD.
- Ensuring US forces' ability to operate against proliferated weapons.

### Four Aspects of Nonproliferation



The United States has pursued initiatives to: reduce the incentives for states to develop such systems; prevent nations from acquiring the means to develop WMD and missile delivery systems; and establish binding agreements through which states can express their nonproliferation and disarmament commitments. These include the Nuclear Nonproliferation and Comprehensive Test Ban Treaties and the Chemical Weapons and Biological Weapons Conventions.

As the threat from proliferating countries has increased, US Intelligence Community capabilities have expanded to assess those countries' intentions and plans; to identify nuclear, chemical and biological weapons programs and clandestine transfer networks set up to obtain controlled materials or launder money; to support diplomatic, law enforcement, and military efforts to counter proliferation; to provide direct support for multilateral initiatives and security regimes; and to overcome denial and deception practices set up by proliferators to conceal their programs. The proliferation problem will continue to challenge US Intelligence Community assets as countries become more adept at concealing their programs and the supply routes they establish to support their activities.

## Annex A

### Country Profiles

#### North Korea

North Korea has invested heavily in its military and, in large measure, depends on arms sales for much of its hard currency earnings. Its copies of Soviet-designed Scud missiles are present throughout the Middle East, including Iran and Syria.

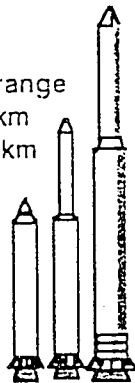
Ballistic Missiles: During the 1980s, North Korea reverse-engineered the 300-km-range Scud B missile and developed the 500-km-range Scud C missile. In addition, a 1,000-km-range missile, the No Dong-1, which was flight-tested in 1993, is in development. From Libya, this missile could reach Athens and Rome. Two new missiles, the Taepo Dong-1 and Taepo Dong-2, with ranges of several thousand kilometers, are also under development.

North Korea continues to pursue an aggressive ballistic missile development program. Past success in generating hard currency from missile sales also will motivate North Korea to continue to explore markets for its Scuds. However, P'yongyang's current ballistic missile systems are relatively inaccurate from a military effectiveness perspective. Development of more sophisticated guidance and control technology will be critical, especially if North Korea plans to deliver payloads other than weapons of mass destruction to longer ranges.

### Ballistic Missile Proliferation: North Korea

- Developing new missiles:

No Dong = 1,000 km range  
Taepo Dong I ≥ 3,000 km  
Taepo Dong II ≥ 3,000 km



- Can carry chemical, biological, and nuclear warheads

- Potential sales to Iran, Libya and other Middle East states

Nuclear Weapons Program: Under the terms of the 21 October 1994 Framework Agreement with the United States, North Korea agreed to freeze its plutonium

production capability. Currently, P'yongyang has halted operation of the 5 MW(e) reactor, ceased construction on two larger reactors, frozen activity at the plutonium recovery plant, and agreed to eventually dismantle these facilities.

Chemical Weapons Program: North Korea has an active chemical warfare program and produces a number of agents, including mustard and blister agents. P'yongyang has produced weapons carrying chemical agents.

Biological Weapons Program: Although it is a signatory to the Biological and Toxin Weapons Convention, North Korea has an active BW program in the early research and development stage.

## Libya

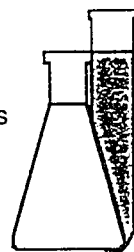
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Ballistic Missiles: Libya currently has only the 300-km-range Scud. Tripoli's indigenous missile program has been hobbled by international sanctions, which have forced Qadhafi to turn to lower-technology sources available on the gray and black arms markets. Credible reporting indicates that Libya is seeking to purchase a medium-range missile from North Korea.

Nuclear Weapons Program: Libya currently operates a small nuclear research center near Tripoli. Qadhafi reportedly is trying to recruit Russian nuclear scientists to assist in developing nuclear weapons, although it is doubtful that Tripoli could produce a nuclear weapon without massive foreign technological assistance.

### Chemical Weapons Proliferation: Libya

- Libya has built, with foreign assistance, a large chemical weapon production plant at Rabta.
- A second CW production facility is under construction at Tarhunah.
- Libya has at least 100 tons of CW agents including mustard and nerve gas.



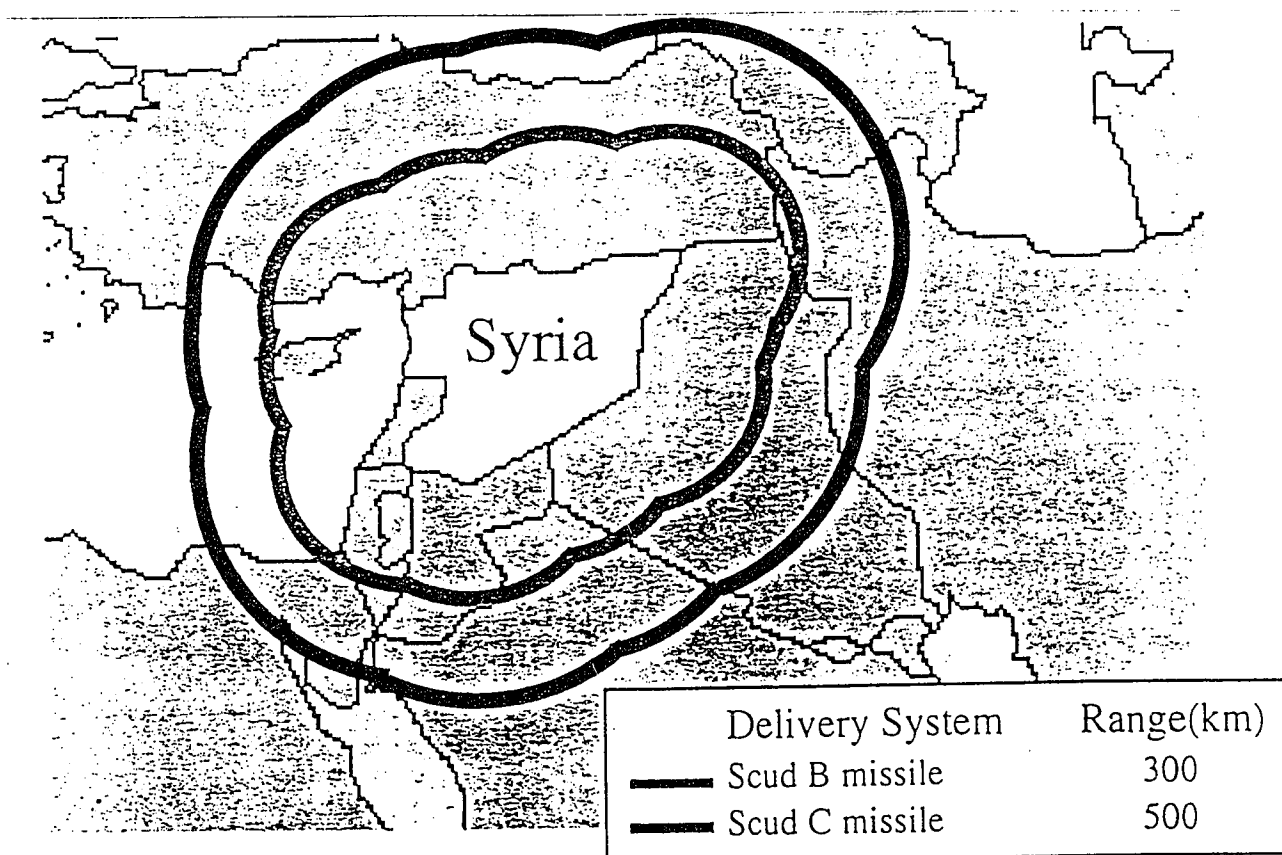
Chemical Weapons Program: Despite international outcries, Libya's CW program continues to flourish. An existing CW plant at Rabta, which previously produced up to 100 tons of CW agent, is inactive but remains capable of renewing production. The Libyans are building a second CW agent production facility underground in a mountainous area near Tarhunah, 65 kilometers southeast of Tripoli.

Biological Weapons Program: Libya's BW program is in the research and development phase and has not produced any biological weapons. A number of Libyan universities are being used for basic research of more common BW agents, but they are not equipped to perform the sophisticated work needed for weapons development.

## Syria

Ballistic Missiles: Damascus has acquired from North Korea both the standard Scud B missiles with a range of 300 km and a smaller number of the 500-km Scud Cs.

### Maximum Range of Syria's Deployed Ballistic Missiles



Nuclear Program: Syria signed the Nuclear Nonproliferation Treaty in 1969 and the IAEA Comprehensive Safeguards Agreement in May 1992. Damascus has an agreement with China, under IAEA sponsorship, to acquire a small 30-KW research reactor. Syria is not at this point seeking to develop nuclear weapons.

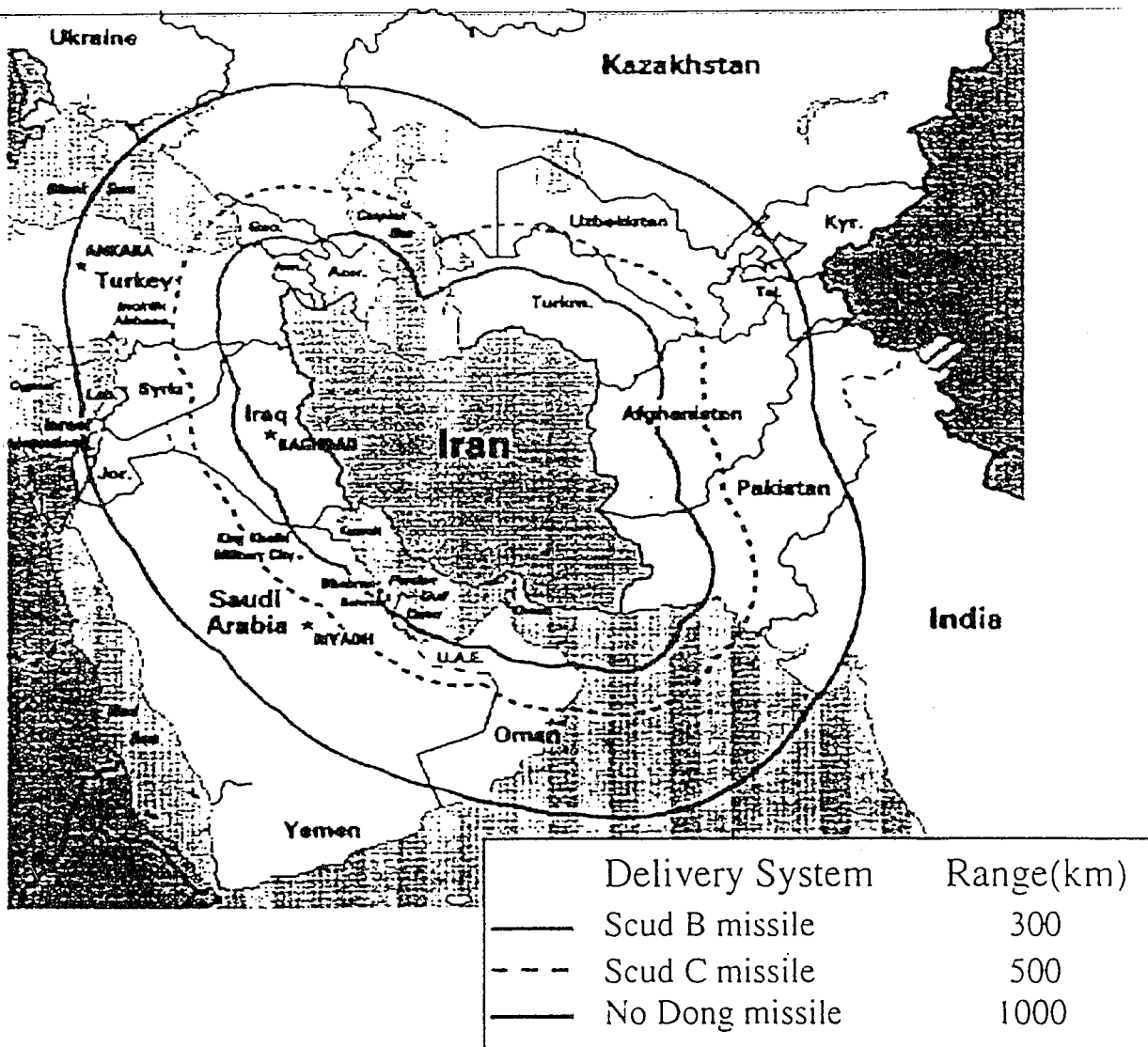
Chemical Weapons Program: Syria has had a chemical warfare program since the mid-1980s.

## Iran

Iran continues to shop Western markets for nuclear and missile technologies. However, as Western export controls have become more effective, Tehran has turned to Asia as its principal source of special weapons and weapons technology.

Ballistic Missile Program: Tehran continues to add to its inventory of ballistic missile delivery systems, which includes Scud Bs and Cs purchased from North Korea, and may develop the ability to use strike aircraft—including its Russian Su-24 light bombers armed with precision-guided munitions—to deliver such weapons.

### Maximum Range of Iran's Planned Ballistic Missiles



Nuclear Weapons Program: Iran is aggressively pursuing a nuclear weapons capability and, if significant foreign assistance were provided, could produce a weapon by the end of the decade. Tehran is devoting significant resources to its nuclear program. Foreign suppliers, including Russia and China, are key sources of necessary technologies not only for Iran's nuclear program but also for its other WMD capabilities.

Chemical Weapons Program: Iran has continued to upgrade and expand its chemical weapons production infrastructure and chemical munitions arsenal, despite signing the CWC in January 1993. Iran produces a variety of chemical agents, including blister, blood, and choking agents. As part of this expansion, Iran is spending large sums of money on long-term capital improvements to its chemical warfare program, suggesting that it intends to maintain a CW capability well into the future.

Biological Weapons Program: Iran has had a biological weapons program since the early 1980s. The program currently is in the late stages of research and development. Iran has the technical infrastructure to support such a program. It conducts top-notch legitimate biomedical research at various institutes. Because Iran can also produce a number of veterinary and human vaccines, it also has the capability to produce biological warfare agents.

## Iraq

Iraq remains a formidable WMD problem. Saddam built major programs in all four areas of WMD. The UN Special Commission (UNSCOM) is working diligently to eliminate Baghdad's programs, but Saddam is determined to acquire weapons of mass destruction and he repeatedly has dug in when the Commission gets close to uncovering something he wants to protect.

Operation Desert Storm did significant damage to Iraq's WMD programs. And, for now, UN sanctions—which prevent the purchase of needed equipment and materials—and inspections, which deter ongoing research and production for fear of discovery, keep Baghdad from restarting the bulk of its WMD programs. However, Iraq's special weapons programs are not beyond recovery. Enough production components have been hidden from UN inspectors to enable Iraq to resume development or production of chemical, biological, and nuclear weapons and long-range missiles once inspections end.

Ballistic Missile Program: Ambassador Rolf Ekeus, Chairman of UNSCOM and the UN's chief weapons inspector for Iraq, believes most, if not all, of the 819 Scud missiles Iraq received from the former Soviet Union have been accounted for. Other information suggests, however, that Baghdad has not accounted for all of its Scud missiles and that perhaps several dozen missiles remain hidden in Iraq.



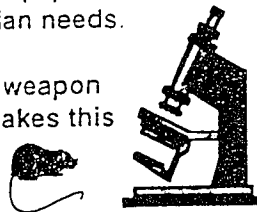
Nuclear Weapons Program: Nuclear weapons production is likely to take the longest time. Baghdad still has the technical expertise, but much of the infrastructure needed to produce fissile materials must be rebuilt. If Saddam were to attempt to move as rapidly as possible, he would need only a few years to do so.

Chemical Weapons Program: The coalition severely damaged the chemical weapons infrastructure as well, and it too will have to be rebuilt. Much of the hard-to-get production equipment was removed and hidden before the bombing started, however, and would be available for reconstruction. If UN sanctions were relaxed, Iraq could produce some chemical agents almost immediately. It would take a year or more to recover the CW capability it previously achieved.

Biological Weapons Program: Facilities belonging to the BW program also were damaged, but critical equipment for it, too, was hidden during the war. And because the program does not require a large infrastructure, the Iraqis could be producing BW agents in a matter of weeks.

## Biological Weapons: Iraq

- Iraq had an advanced Biological Weapons Program before the Persian Gulf War.
- Large purchases of dual use equipment, vaccines and toxins were beyond civilian needs.
- Dual-use nature of biological weapon equipment and techniques makes this the easiest program to hide.



Iraq will remain a primary proliferation threat at least as long as Saddam remains in power. In addition to what he has hidden, Saddam retains his trained scientists and engineers, and he clearly hopes to outlast the focus of the world's attention.

## Annex B

### Nuclear Interdiction Chronology

Date (1994)	Reported Incident
14 December	Czech police seized 2.72 kg of material—later identified as 87.7-percent-enriched U-235—in Prague, the largest recorded seizure of such material. Police arrested a Czech nuclear physicist and two citizens of the former Soviet Union. The uranium apparently came from the FSU and was to be smuggled to Western Europe.
10 December	Press reports indicate Hungarian border guards seized 1.7 kg of uranium and arrested four Slovak citizens. The material (depleted uranium and reactor-grade fuel) reportedly was concealed in a fruit jar and was destined for Austria.
10 November	Press reports indicate Hungarian police discovered 26 kg of radioactive material in the trunk of a car. Three suspects were subsequently arrested.
November	Press reports indicate German police seized 1 mg of cesium-137 in early November and arrested two suspects.
26 October	Press reports indicate Russian authorities arrested three men trying to pass 67 kg of U-238 to unidentified individuals in the city of Pskov.
20 October	Press reports indicate Turkish police arrested an Azeri national trying to sell 750 gm of enriched uranium.
19 October	Press reports indicate Bulgarian officials seized four lead capsules suspected of containing radioactive material. The capsules were found on a bus en route to Turkey, and police detained the two bus drivers.
18 October	Press reports indicate four Indian villagers were arrested attempting to sell 2.5 kg of yellowcake (uranium extracted from ore).
17 October	Press reports indicate Russian authorities seized 27 kg of U-238 and an unknown quantity of U-235, and detained 12 members of a criminal gang.

- 12 October Press reports indicate Romanian authorities arrested seven people and seized 7 kg of uranium and an unidentified quantity of strontium or cesium.
- 5 October Press reports indicate Romanian police arrested four people trying to sell more than 4 kg of U-235 and U-238.
- 30 September Press reports indicate that a container with radioactive substances was found on a street in Tallinn, Estonia.
- 30 September Press reports indicate Slovak officials arrested four Slovaks trying to smuggle almost 1 kg of U-235 (judged not to be weapons-grade) into Hungary.
- ~~26 September~~ ~~Press reports indicate the discovery of a glass flask containing unspecified "weak radioactive material" at the Wetzlar railroad station in Germany.~~
- 14 September Press reports indicate Bulgarian authorities arrested six Bulgarians and seized 19 containers of radioactive material.
- 12 September Press reports indicate German police arrested a Zairian national attempting to smuggle 850 gm of uraninite into Germany.
- 9 September Press reports indicate Russian police arrested three people in Glazov trying to sell 100 kg of U-238.
- 31 August Press reports indicate thieves broke into a chemical plant in Tambov, Russia, and stole 4.5 gm of cesium 137.
- 30 August Press reports indicate Hungarian police arrested two men and seized 4.4 kg of material believed to be fuel rods from a reactor in Russia.
- 29 August Press reports indicate Estonian police arrested a man and seized 3 kg of U-238 he had buried under his garage.
- 24 August Press reports Russian authorities arrested two men attempting to steal 9.5 kg of U-238 from the Arzamas-16 nuclear weapons research facility.
- 18 August Press reports indicate that St. Petersburg police arrested three men trying to sell 60 kg of unidentified nuclear material.

- 16 August Press reports indicate German police in Bremen arrested a German who claimed to have 2 gm of plutonium; the sample contained only minute amounts of legally obtainable plutonium.
- 13 August Press report indicates that more than 500 gm of nuclear material were seized at Munich airport.
- 11 August Press reports indicate a seizure of 0.8 gm of U-235 (enriched to 88%) occurred in Landshut, Germany.
- August Unconfirmed press report says three kg of enriched uranium were seized in southwestern Romania.
- 30 July Press reports indicate 56 gm of material, including six gm of plutonium 239, were seized, and Adolf Jaekle, a German citizen, was arrested in Germany in May.
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- 19 July Press reports indicate Turkish National Police arrested seven Turks and seized 12 kg of weapons-grade uranium.
- 8 July Russian authorities arrest three officers from the Northern Fleet accused of having stolen 4.5 kg of U-238 from their base in November 1993.
- 6 July Russian authorities in Shezninks discover 5.5 kg of U-238 previously stolen from the Chelyabinsk-65 nuclear facility.
- 6 June Russian security official announces the arrest of three Russians in St. Petersburg who allegedly tried to sell 3.5 kg of highly enriched uranium.