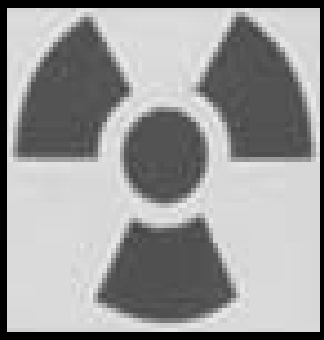
The Model Nuclear Inventory:



Accountability is Democracy, Transparency is Security

2005

Reaching Critical Will
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Introduction

The 1968 nuclear Non-Proliferation Treaty (NPT) is the world's oldest and most popular disarmament and arms control treaty. Through it, States without nuclear weapons pledged never to acquire them in exchange for the complete elimination of these weapons by those who already possess them- namely, the United States, Russia, United Kingdom, France and China.

Thirty-five years after its entry-into-force, many governmental and non-governmental experts, analysts and activists perceive the Treaty to be in a state of crisis. Nuclear Weapon States are focusing much more heavily on the non-proliferation obligations, while Non-Nuclear Weapon States remain intent on assuring full implementation of the disarmament obligations of the Treaty. Meanwhile, other areas in the field of disarmament and non-proliferation remain stalled: a treaty banning the production of fissile materials has yet to be negotiated; the Comprehensive Nuclear Test-Ban Treaty, nine years after its negotiation, has yet to enter-into-force; political machinery such as the Conference on Disarmament or the UN Disarmament Commission cannot even obtain agreement on an agenda. Many in the international community are becoming increasingly anxious over suspected proliferation around the world, both by States as well as non-state actors, while many others remain fearful that the modification and additions to existing arsenals is violating, undermining and weakening the spirit and letter of the NPT itself.

What is needed now is a course to strengthen both disarmament as well as non-proliferation obligations. The Women's International League for Peace and Freedom, with the contribution and assistance of non-governmental organizations around the world, offer this Model Nuclear Inventory as a tool toward the achievement of a nuclear weapon-free world. This Inventory tracks the military and civilian nuclear materials, weapons, locations and policies in each of the 44 States listed as having significant nuclear capabilities in Annex II of the Comprehensive Nuclear Test-Ban Treaty. As this is an NPT-targeted report, only NPT States parties are included.

At a time marked by inaction and indecision on the international level, wherein most all of our multilateral machinery remains deadlocked to the point of paralysis, an Inventory remains one of the few areas for possible agreement- and therefore possible collective action. Germany proposed the creation of such an inventory in a working paper to the 2002 Preparatory Committee conference. As part of their Global Threat Reduction Initiative, the United States proposed a global database of research reactors and their spent fuel. Canada remains a leading supporter of Article VI reporting, which they rightfully view as an important confidence-building, transparency and accountability measure. The verifiability of a Fissile Materials Treaty, which many States view as the next logical step in disarmament, will be enhanced with the creation of an Inventory such as the one contained in the following pages.

In this way, such an Inventory can help impel progress on many disarmament and arms control fronts. By tracking and securing fissile materials around the world, we can help prevent illegal acquisition of these materials. Likewise, irreversible, verifiable disarmament can be possible only after a full accounting of existing stockpiles is taken.

As a tool for progressing nuclear disarmament and non-proliferation, the Model Nuclear Inventory must also include an assessment of the legal- as well as the technical- aspects of the international disarmament and non-proliferation regime. Therefore, the Model Nuclear Inventory also includes a chapter that analyzes the Nuclear Weapon States' implementation of the Practical Steps to Disarmament, as unanimously agreed upon at the Sixth Review Conference of the NPT in 2000.

The information contained within the Model Nuclear Inventory is derived from publicly available sources. We encourage all governments, non-governmental organizations, academic research institutes or scientific-technical institutes to contribute to this database, which we view as a work-in-progress. If you would like to challenge any of the information contained herein, we strongly encourage you to contact us.

- Rhianna Tyson,
Editor and principal author
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Categories of Investigation

The Inventory employs the following categories of investigation for each Nuclear Weapon State, as well as Non-Nuclear Weapon States with foreign nuclear weapons deployed on their soil:

1. Amount, Location, and Operational Plan of Nuclear Weapons
Strategic weapons
Tactical weapons
Deployment/storage sites
The role of nuclear weapons in national security strategies

2. Activities specifically undertaken in accordance with Article VI of the NPT
Nuclear weapons reductions
Major nuclear weapons facilities shut down

3. **Location and capability of nuclear facilities**
Quantity and status of power reactors
Quantity and status of research reactors
Fuel fabrication facilities, including uranium mines, enrichment and reprocessing

4. Fissile Material Holdings
Plutonium and enriched uranium stocks
Declared excess stocks
Methods and policies for low-, intermediate- and high-level radioactive waste disposal

5. Nuclear Activities
Research programs/centers
Bilateral and multilateral nuclear cooperation programs and agreements

6. International Non-proliferation Efforts
Treaties signed and ratified, date of deposit
Multilateral groups of which they are members

7. Positions Taken in International Fora on Various Issues of Nuclear Disarmament
Excerpts of statements made at NPT Preparatory Committee and Review Conferences, General Assembly sessions, Conference on Disarmament sessions and others.

The Inventory employs the following categories of investigation for each Non-Nuclear Weapon State:

1. Location and capability of nuclear facilities
Quantity and status of power reactors
Quantity and status of research reactors
Fuel fabrication facilities, including uranium mines, enrichment and reprocessing

2. Fissile Material Holdings
Plutonium and uranium stocks
Methods and policies for low-, intermediate- and high-level radioactive waste disposal

3. Nuclear Activities
Research centers
Bilateral and multilateral nuclear cooperation programs and agreements

4. International Non-proliferation Efforts
Treaties signed and ratified, date of deposit
Multilateral groups of which they are members

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament
Excerpts of statements made at NPT Preparatory Committee and Review Conferences, General Assembly sessions, Conference on Disarmament sessions and others.

Nuclear Weapon States' Compliance with the Practical Steps to Disarmament

STEP 1: SIGNING THE CTBT

The importance and urgency of signatures and ratifications, without delay and without conditions and in accordance with constitutional processes, to achieve the early entry-into-force of the Comprehensive Nuclear Test-Ban Treaty (CTBT).

US: In 1999, the US Senate rejected the CTBT, making it the only legislative body in the world to do so.

The US continues to make it clear that it has no intention of ratifying the CTBT. At the General Assembly in 2003, Assistant Secretary of State Stephen Rademaker stated plainly that, "The U.S. does not support the Comprehensive Nuclear Test-Ban Treaty and will not become a party to it", the strongest language against the CTBT used by the US to date.

Russia: Ratified 30 June 2000

UK: Ratified 6 April 1998

France: Ratified 6 April 1998

China: China has not yet ratified, although it has been submitted to the National People's Congress Standing Committee for examination and approval. China consistently expresses support for the CTBT in disarmament fora, including the General Assembly First Committee, where Ambassador Hu Xiaodi affirmed on 5 October 2004 that the CTBT "is of milestone significance for promoting nuclear non-proliferation and nuclear disarmament. China firmly supports CTBT and stays committed to the moratorium on nuclear test." It is widely believed that China is awaiting US ratification before moving forward with its own national ratification.

CTBT ANNEX II STATES WHOSE RATIFICATION IS NEEDED FOR THE ENTRY-INTO-FORCE*

Algeria	***Finland***	***Rep. Korea***
Argentina	***France***	***Romania***
Australia	***Germany***	***Russian Fed.***
Austria	***Hungary***	***Slovakia***
Bangladesh	India	***Switzerland***
Belgium	*Indonesia*	***Turkey***
Brazil	*Iran*	***Ukraine***
Bulgaria	***Israel***	***United***
Canada	***Italy***	***Kingdom***
Chile	***Japan***	*United States*
China	***Mexico***	*Vietnam*
Colombia	***Netherlands***	
DPR of Korea	***Norway***	
	Pakistan	
DR Congo	***Peru***	**Ratified**
Egypt	***Poland***	**Signed**

STEP 2: MORATORIUM UNTIL CTBT ENTERS-INTO-FORCE

A moratorium on nuclear weapon test explosions or any other nuclear explosions pending entry-into-force of that Treaty.

US: On 2 October 1992, Congress imposed a testing moratorium, two weeks after the last test took place on September 23.

The Bush administration is seeking to reduce the amount of time it would take the Nevada Test Site (NTS) to resume nuclear testing, from the current 36 months to 18 months.

In a testimony to the House Armed Services Committee in February 2005, Secretary of Energy Samuel Bodman affirmed that, "We will continue our efforts to maintain the ability to conduct underground nuclear testing and complete the transition to the 18-month test readiness posture that is mandated by Congress."

Russia: Following the full-scale nuclear test conducted by the Soviet Union on 24 October 1990, then-Soviet President Mikhail Gorbachev announced a unilateral moratorium on testing, which has been in place ever since.

UK: The last explosive test conducted by the UK took place on 26 November 1991.

France: Despite the decision of the 1995 Review Conference which called for the Nuclear Weapon States (NWS) to "exercise utmost restraint" in nuclear testing, France did not cease full-scale nuclear testing until January 1996. The dismantlement of testing facilities in the Pacific was

completed by July 1998.

China: On 29 July 1996, within 72 hours of the release of the "Decision on Principles and Objectives for Nuclear Non-Proliferation and Disarmament" which called for NWS to "exercise utmost restraint" in nuclear testing, China conducted its last test. Reportedly, the testing facility at Lop Nor has been converted for non-military purposes.

STEP 3: FMCT IN THE CD

The necessity of negotiations in the Conference on Disarmament on a non-discriminatory, multilateral and internationally and effectively verifiable treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices in accordance with the statement of the Special Coordinator in 1995 and the mandate contained therein, taking into consideration both nuclear disarmament and nuclear non-proliferation objectives. The Conference on Disarmament is urged to agree on a program of work, which includes the immediate commencement of negotiations on such a treaty with a view to their conclusion within five years.

HISTORY OF THE FMT NEGOTIATIONS

Since the signing of the NPT, a significant issue in the disarmament and arms control community has been the continued production of fissionable materials. Many States have long been calling for a ban on the production of fissile materials (Fissile Materials Treaty or FMT), and the issue has been on the proposed agenda of the Conference on Disarmament for years.

One of the major points of disagreement has been the issue of "existing stocks." Many Non-Nuclear Weapon States (NNWS) wanted to negotiate a fissban that not only halted all future productions of fissile materials, but also put a cap on existing stockpiles, thereby requiring the Nuclear Weapon States (NWS) to irreversibly downblend existing stocks of weapons-grade fissile materials so that they can never be used for nuclear weapons again.

Another contentious element to an FMT is its scope. While a treaty would ban the production of most fissionable materials, it would not include tritium, an element used to amplify the explosive power of a nuclear weapon. Tritium is a radioactive isotope of hydrogen that has a half-life of 12 years. Were it to be included in an FMT, the decaying tritium in existing stocks could not be replaced, in effect limiting the weapon's destructive power. Other materials, such as depleted uranium, neptunium, natural uranium, plutonium 240 and 242, americium, curium and californium, though not fissionable, are used in weapons programs.

In 1995, informal consultations amongst CD governments produced the Shannon Mandate (named after Ambassador Gerald E. Shannon of Canada), which calls for an Ad Hoc Committee on Fissile Material Cut-Off (FMCT) where all issues (including existing stocks) can be raised. The committee did not get off the ground, yet the Shannon Mandate remains the base for future negotiations.

US: On 14 July 1992, the US announced a unilateral moratorium on the production of plutonium for use in nuclear weapons or other explosive devices.

On 19 July 2004, the US declared that their long-awaited policy review on the Fissile Material Cut-Off Treaty (FMCT) revealed that "realistic, effective verification of an FMCT is not achievable." The exclusion of verification elements from the negotiation of an FMCT is contradictory to the agreed upon mandate contained from 1994, often referred to as the Shannon Mandate. (1)

Russia: Russia ceased producing weapons-useable plutonium in October 1994.

In announcing their support of the A5 Proposal in August, 2003, Russia agreed to start negotiations on an FMCT. In their general statement to the 58th session of the General Assembly First Committee, Russia regarded the start of negotiations on an FMCT as "another logical step in the area of nuclear non-proliferation and disarmament."(2)

UK: The UK has observed a moratorium on fissile material production since 18 April 1995.

At the 59th session of the General Assembly First Committee, the UK was the only Member State

(with the exception of Israel, a non-NPT State party) to abstain from voting on the draft resolution on an FMCT. These abstentions, together with the US' lone vote against, broke the consensus that previous versions of this resolution had accrued.

France: France ceased producing weapons-usable plutonium in 1992 and highly-enriched uranium (HEU) in 1996; its fissile material production facilities in Marcoule and Pierrelatte have been closed.

China: China is the only NWS to have never implemented a fissile material production moratorium. In his closing statement to the 2003 Preparatory Committee meeting of the NPT, Ambassador Hu Xiaodi stated that, "an undefined and unverifiable 'moratorium' on production' will not resolve the question of production in the relevant countries but may well produce more problems and adversely affect FMCT negotiations."

After accepting the Shannon Mandate as well as the A5 Proposal (see text box at right), "China is now studying in a serious manner the proposal of negotiating a FMCT without verification," as stated by Ambassador Hu Xiaodi in a statement 5 October to the 59th session of the General Assembly First Committee.(3)

STEP 4: NUCLEAR DISARMAMENT BODY IN THE CD

The necessity of establishing in the Conference on Disarmament an appropriate subsidiary body with a mandate to deal with nuclear disarmament. The Conference on Disarmament is urged to agree on a program of work, which includes the immediate establishment of such a body.

US: Deputy Permanent Representative Sherwood McGinnis expressed the US's aversion to multilateral negotiations on nuclear disarmament in his closing statement to the 2003 session of the UN Disarmament Commission (UNDC). Mr. McGinnis attributed the failure of the UNDC to reach consensus on the lack of focus. He maintained that nuclear disarmament, as an item on the agenda, was too broad, which effectively stymied progress. It is logical, then, that the US would view nuclear disarmament as "too broad" a topic for the CD, a 66-member forum, as well.

Russia: Russia supports a subsidiary body on nuclear disarmament in the CD. In 2001, they proposed an agenda to the CD that would have established parallel subsidiary bodies on nuclear disarmament and the prevention of an arms race in outer space (PAROS). In August 2003, Russia voiced support for the A5 Proposal, which would establish an Ad Hoc Committe to deal with nuclear disarmament. Russia also has supported plurilateral initiatives, such as a "standing consultative process" amongst the Permanent Members of the Security Council "in the area of nuclear disarmament and strategic stability." (4)

UK: While the UK prefers a bilateral framework for nuclear disarmament, the UK has accepted the A5 Proposal.

France: France has not pubicly voiced support or opposition to the A5 Proposal or the creation of a subsidiary body on nuclear disarmament in the CD.

THE A5 PROPOSAL

The most likely agenda to be adopted in the CD comes from the five ambassadors from Belgium, Algeria, Chile, Colombia and Sweden in January, 2003. Now simply referred to as the "A5 proposal," the agenda would include the establishment of four ad-hoc committees on nuclear disarmament, fissile materials, the prevention of an arms race in outer space and negative security assurances. It would also appoint three Special Coordinators for new types of WMD including radiological weapons, a comprehensive programme of disarmament and transparency in armaments.

The A5 enjoys broad, though not consensus support. Nonetheless, an increasing number of delegations are viewing the A5 as the best basis for a program of work, one that is susceptible to change and evolution.

China: Previously, China linked their support for the establishment of a nuclear disarmament subsidiary body in the CD with the parallel establishment of subsidiary bodies to deal with PAROS and FMCT. In August 2003, China "de-linked" these issues and voiced support for the A5 Proposal.

The website of the People's Liberation Army states that, "It is necessary at all stages of the arms control and disarmament process to ensure all nations from sustaining damage to their security. All nations, big or small, have the right to join in discussions and decisions on arms control and disarmament on an equal basis." (5)

STEP 5: IRREVERSIBILITY

The principle of irreversibility to apply to nuclear disarmament, nuclear and other related arms control and reduction measures.

> *"There is a nuclear safety and reliability reason to maintain the right to re-deploy."*
> - US INFORMATIONAL PAPER SUBMITTED TO THE 2003 PREPARATORY COMMITTEE OF THE NPT

US: The 2002 Nuclear Posture Review (NPR) calls for the deactivation of 50 MX missiles; the silos, missile stages and warheads of these "deactivated" missiles will be retained. A February 2004 report from the Defense Science Board recommended re-deploying MX missiles armed with conventional warheads. (6) In addition, 4 US Trident submarines will be converted to carry conventional, rather than nuclear weapons. At any time, the US can re-convert these submarines to be nuclear-capable. (7)

The 2002 Strategic Offensive Reductions Treaty (Moscow Treaty) between the US and Russia does not contain any provision for the destruction of delivery systems, nor does it require the dismantlement of a single warhead; "cuts" under the Moscow Treaty store, rather than eliminate, warheads, which could be re-deployed in the future.

Russia: As the focus of strategic weapons reductions in the Russian nuclear arsenal, the Moscow Treaty remains insufficient, especially in the context of ensuring ireversible disarmament. Under this treaty, no delivery systems are destroyed and warheads are stored, not eliminated. The treaty also lacks an indicative timetable and expires the day the requirements are to be met.

The reductions in the Russian arsenal will in effect be more irreversible than those made in the US arsenal. Since the Russian Federation lacks the resources to modernize its delivery systems, it will fulfill its reduction obligations by eliminating old types of intercontinental and submarine-launched ballistic missiles. Destroying delivery systems will enhance the irreversibility of the Moscow Treaty, at least on the Russian side.

UK: The last Chevaline warhead was dismantled in 2002 in an irreversible manner, thereby making the Polaris system obsolete. (8)

France: The steps taken by France, including the dismantlement of its testing facilities in the Pacific and the withdrawal of the Hades system were irreversible measures. However, no further measures have been taken since these acts in the late 1990s.

China: China's statements in international disarmament fora affirm their support for the principle of irreversibility. However, due to the lack of public information about China's nuclear arsenal, steps toward irreversible disarmament cannot be ascertained.

STEP 6: TOTAL ELIMINATION

An unequivocal undertaking by the Nuclear Weapon States to accomplish the total elimination of their nuclear arsenals leading to nuclear disarmament to which all States parties are committed under Article VI.

US: The Bush administration has requested $4 million for the Department of Energy (DoE) to study the so-called nuclear bunker buster, a nuclear warhead to penetrate deeper underground before exploding. The Air Force also requested $4.5 million to help conduct the study. (9)

While the US Congress rejected a $27.6 million dollar request in the FY2005 budget for the Robust Nuclear Earth Penetrator, the Bush administration continues to pursue the funds for a program some view as "essential, prudent, and necessary." (10) $8.5 million was requested for FY2006.

The Bush administration envisions a $125 million budget over the next five years to construct a Modern Pit Facility (MPF) to produce new plutonium cores, or pits, of nuclear weapons.

Under the Moscow Treaty, the rate of reduction is slower than under the Strategic Arms Reduction Treaty (START) process, which would have obliged each country to reduce their strategic arsenals to 1700-2200 by 2007. SORT provides for the same reductions by 2012. The abandonment of START, which provided for quicker and irreversible reductions, runs contrary to an "unequivocal undertaking" to eliminate nuclear arsenals.

> *"The continuing risk from the proliferation of nuclear weapons, and the certainty that a number of other countries will retain substantial nuclear arsenals, mean that our minimum nuclear deterrent capability, currently represented by Trident, is likely to remain a necessary element of our security."*
> - DELIVERING SECURITY IN A CHANGING WORLD: UK DEFENCE WHITE PAPER, 2003.

Russia: Despite deep cutbacks, Russia maintains a considerable nuclear arsenal. Under START II, Russia had agreed to dismantle the multiple independently targetable re-entry vehicles (MIRV) from its nuclear missiles, but has now decided to retain SS-18s and SS-19s with multiple warheads until at least 2016. President Putin has said the SS-19s could be deployed until 2030.

In December, 2003, after a two-year break, Russia deployed new Topol-M missiles, which are probably the missiles that were recently equipped with unprecedented Maneuverable Re-Entry Vehicles (MARV) to counter US ballistic missile defenses.

In his 17 November 2004 address to the meeting of military commanders held in Moscow, President Putin announced that the Russian armed forces will soon receive a unique "new nuclear missile system," which many believe is the Bulava sea-launched ballistic missile, currently in development. (11) Russia intends on testing this new SSBN in summer, 2005. (12)

UK: Since dismantling the last Chevaline warhead in 2002, the UK has not undertaken any further cuts to their arsenal. UK intends to maintain "a minimum nuclear deterrent," a policy stated in the Strategic Defence Review (1998) and reaffirmed in several other documents, including the SDR A New Chapter (2002) and a December,2003 Defence White Paper, "Delivering Security in a Changing World."

The next Parliament will debate replacing the Trident, their remaining nuclear weapon system. In the meanwhile, the UK Atomic Weapons Establishment (AWE) is continuing work "to ensure that Trident could remain an effective deterrent for up to 30 years," (13) thereby promising the "continuing role of nuclear weapons as the ultimate guarantor of UK's national security." (14)

France: France declares that its Triomphant and Super Étendard meets "minimum sufficiency" and has no plans to reduce further.

In addition, new French nuclear missile submarines continue to enter service. Newly purchased M51 missiles are equipped with a new warhead, the Tête Nucleaire Oceanique. Development of the air launched nuclear missile ASMP-A continues apace. This missile will carry the Tête Nucleaire Aeroportee, another new warhead. This increases France's nuclear weapons capabilities, and, according to the French National Assembly, will assure France's status as a NWS until 2040. (15)

China: China is developing new, solid-fueled ballistic missiles to replace the DF-4 (CSS-3) and the DF-5 (CSS-4). (16) A 2002 Pentagon report claimed that China may triple its ICBM arsenal by the end of the decade and may place multiple warheads on existing missiles (DF-5A). (17)

Step 7: Start II, Start III, ABM Preservation

The early entry-into-force and full implementation of START II and the conclusion of START III as soon as possible while preserving and strengthening the Anti-Ballistic Missile (ABM) Treaty as a cornerstone of strategic stability and as a basis for further reductions of strategic offensive weapons, in accordance with its provisions.

US: Although the Senate ratified START II in January of 1996 and the Duma conditionally ratified it in April 2000, the treaty never-entered-into-force. The US announced its withdrawal from the ABM Treaty on 14 December 2001 in order to legally pursue the development of missile defense system. The withdrawal was effective as of 14 June 2002, and as a direct effect, Russia declared START to be null and void.

Russia: Moscow regarded the US's unilateral withdraw from the ABM treaty as an "erroneous decision" that "has not been determined by the search of a response to actual missile threats (but rather) is reflecting a certain approach, a unilateral one, which runs contrary to the security interests of other countries and international security in general." (18)

On 13 June 2002, the day after the US's withdrawal, Russia announced that START II was null and void.

UK: The UK did not protest the US's withdrawal from the ABM Treaty. A spokesperson for Prime Minister Tony Blair said that "What is important is the maintenance of strategic stability rather than a particular framework to achieve that." The December 2003 Defence White Paper states that, "missile defence technology is a growing area of interest following the ending of the Anti Ballistic Missile Treaty," signifying the UK's probable participation in the development of missile defenses with the United States, which is already using the British facilities at Menwith Hill and Fylingdales for missile defense purposes.

France: France vocalized only modest apprehension to the US's withdrawal from the ABM Treaty, stating that France hoped that a "binding international instrument" would replace it.

China: Despite its vocal opposition to the US's intent to withdraw from the ABM Treaty, once the withdrawal was final, China quieted its objections. China remains an adamant, leading supporter of a PAROS mandate, which would ban all weapons from outer space.

Off to the Arms Race

When the US began talking about withdrawing from the ABM Treaty, critics held that such a move would re-trigger a new arms race.

The US' plans for a missile defense system are proceeding apace; in fiscal year 2005, the US budget for missile defense surpassed $10 billion.

In 2004, Rusia developed a new warhead that they boasted could evade any missile defense. According to First Deputy Chief of Staff Colonel-General Yury Baluyevsky, the warhead is "part of our unilateral response to the creation or future creation of a missile defense system by any state or bloc of states."

Deployment of this system is expected in 2006. (19)

Step 8: Trilateral Initiative

The completion and implementation of the Trilateral Initiative between the United States of America, the Russian Federation, and the International Atomic Energy Agency (IAEA)

US: In September 2002, the three parties to the Trilateral Initiative announced that the preparatory work was nearly complete. However, a legally binding agreement with the IAEA has not yet been finalized.

The US has not agreed to allow for verification of its stored fissile material, thereby holding up verification mechanisms in Russia (see Russia below), though US$2.3 billion has been budgeted for verification under the Trilateral Initiative.

The US is also concerned with liability protection for its nationals working on converting fuel in Russia- a legal dispute that is stalling implementation of the Trilateral Initiative.

There also exists a Congressional mandate which stipulates that US plutonium disposition must proceed on a parallel track with plutonium disposition in Russia- the transparency and accountability of which is still in question.

Questions also remain over whether the IAEA is expected to continue to monitor the material even after it has been converted to civil use. (20)

Russia: Russia agreed to allow for verification of fissile material stored at its Mayak facility, so long as the US agrees to a similar arrangement for the verification of its stored fissile material.

Russia has not yet satisfied some of the transparency, accountability and legal concerns of the United States- (see US, above) unresolved questions which continue to delay implementation of the Trilateral Initiative.

> *"We will continue... to build up the armed forces in general and its nuclear component... These are projects which do not exist elsewhere and which other nuclear states will not have in the next few years."*
> - Russian President Vladimir Putin (21)

UK: In the Chairmen's summaries from the Preparatory Committees, States parties stressed the importance of arrangements by all Nuclear Weapon States to place excess nuclear weapons' fissile material under IAEA verification as well as to provide for this material's disposition. The UK has not made any such arrangements with the IAEA. The UK has, however, begun a national inventory of its fissile material.

France: France has not yet declared any fissile materials to be in excess of its weapons program.

China: China has not yet declared any fissile materials to be in excess of its weapons program. It is notable that China was the first Nuclear Weapon State to ratify the Additional Protocol with the IAEA, on 28 March 2002.

STEP 9: STEPS

Steps by all the Nuclear Weapon States leading to nuclear disarmament in a way that promotes international stability, and based on the principle of undiminished security for all.

a) further efforts by Nuclear Weapon States to reduce their nuclear arsenals unilaterally

US: The Nuclear Posture Review calls for the elimination of MX ICBMs, 4 Trident SSBNs from strategic service, and downloading weapons from Trident SLBMs, Minuteman III ICBMs, and B-52H and B-2 bombers. By 2007, there will be 3,800 operationally deployed warheads, and 1700-2200 by 2012. These unilateral cuts were planned for before the signing of the Moscow Treaty; however, they are now included as part of the reductions called for in that treaty.

These cuts however are not irreversible (see Step 5, page 5). The Defense Department's program,"Operationally Responsive Spacelift," calls for using the retired Minuteman III rockets for a variety of new missions, including first-strike nuclear assaults. (22)

Russia: Russian defense officials announced a new plan for future strategic forces which aims to reduce the number of deployed strategic warheads to 2,022 by 2015. These cuts are a combination of both unilateral decisions as well as obligations under the Moscow Treaty.

UK: In the 1990s, the UK reduced the nuclear arsenal to fewer than 200 weapons, downgraded its surface ships from nuclear capabilities, and dismantled all of its air-launched nuclear weapons. The Labour Government lowered the maximum number of warheads on its Trident submarines from 96 to 48. Trident II missiles were reduced from 65 to 58.

No further progress has been made. Foreign Office Minister Chris Mullin testified to the House of Commons on 8 March 2005 that, "the

continuing risk from the proliferation of nuclear weapons and the certainty that a number of other countries will retain substantial nuclear arsenals means that our minimum nuclear deterrent capability, currently represented by Trident, is likely to remain a necessary element of our security for the foreseeable future... When we are satisfied that sufficient progress has been made to allow us to include British nuclear weapons in any negotiations without endangering our security interests, we shall do so."(23)

France: There have been no further unilateral cuts since those of 1996-1998 (see pages 36-37).

China: China repeatedly insists that those countries having the largest nuclear arsenals "bear a special and primary responsibility toward nuclear disarmament, and that they should take the lead in drastically reducing their nuclear arsenals and destroy the reduced nuclear weapons."(24)

b) Increased transparency by the Nuclear Weapon States with regard to their nuclear weapons capabilities and the implementation of agreements pursuant to Article VI and as a voluntary confidence-building measure to support further progress on nuclear disarmament.

US: The Moscow Treaty does not incorporate any warhead reduction transparency measures.

There are, however, other bilateral technical agreements in effect, such as the Warhead Safety and Security Exchange Agreement and the Highly Enriched Uranium Purchase Agreement, both of which contain stipulations for data exchanges and other transparency measures.(25)

> *If nuclear forces of both sides are maintained at lower levels of combat readiness, there is no need to have large quantities of warheads and delivery vehicles, which are maintained out of the fear that a large portion of the arsenal could be destroyed in a preventive surprise strike by the adversary.*
> - Russian Academy of Sciences (28)

Russia: It has been reported that, during negotiations of the Moscow Treaty, In the negotiation of the Moscow Treaty, the US offered some warhead transparency measures that were rejected by Russia. (26)

In late 2004, Russia announced a new nuclear posture review, outlining the plan for future strategic forces based on unilateral policy and implementation of the Moscow Treaty. (27)

UK: The UK is undergoing significant work in the field of verification (see Step 13, page 12), an important step in the promotion of transparency. The UK has also submitted informal reports (see Step 12, page 12) to the Preparatory Commmittee meetings, another important transparency measure. The Strategic Defence Review states that a component of Britain's nuclear deterrent includes "being much more open about Trident and other nuclear issues."

France: The activities that take place on France's former testing grounds in the Pacific, closed since 1996, are fully transparent. There is also a significant amount of public information in regard to France's nuclear capabilities.

The nuclear research undertaken at the facilities at Bordeaux is highly secretive, however, and not subject to any measures of cooperation or transparency.

China: There is very little public information released about China's nuclear arsenal, arguably making it the most opaque Nuclear Weapon State.

c) The further reduction of non-strategic nuclear weapons, based on unilateral initiatives and as an integral part of the nuclear arms reduction and disarmament process.

US: In January 2003, the US completed dismantling of all non-strategic nuclear weapons under the 1991 Presidential Nuclear Initiative.

The US maintains that a legal agreement on tactical weapons is "not possible" because tactical reductions are difficult to verify.(27)

Russia: No further reductions in non-strategic nuclear weapons have been made since the Presidential Initiatives of 1991. The principles contained therein directed the elimination of more than 30% of nuclear munitions of tactical sea-launched missiles. All tactical nuclear munitions previously deployed outside of Russia have been brought back to Russian territory and are being eliminated.

In addition, the production of nuclear munitions for tactical ground-launched missiles, nuclear artillery shells and nuclear mines has been halted, and the destruction of nuclear re-entry vehicles for tactical missiles and nuclear artillery shells, as well as nuclear mines, continues.

> *"The Great Powers who have nuclear weapons are not in the least thinking of abandoning them."*
> - French Minister of Defense Michèle Alliot-Marie

UK: The UK has had no tactical nuclear capabilities since 1999.

France: France maintains 24 air-launched tactical nuclear weapons (the Super Étendard).

China: The only tactical system remaining is the DF-3, which is being retired. *Chinese Defence Today* claims that the DF-11 and DF-15, both single-stage, solid-fuel missiles "are modern and capable compared to similar systems developed by US and Russia (and)...indicate China's capability to launch a high-tech, theatre-operation-style attack to any target in the region." (28)

d) Concrete agreed measures to further reduce the operational status of nuclear weapons systems

US: While the Moscow Treaty remains an insufficient disarmament measure (see Step 5, page 5), it could be viewed as the most significant de-alerting measure in the history of nuclear weapons. It does not require the destruction of a single warhead, but it does require the US and Russia to remove thousands of strategic warheads from operation deployment by 2012, thus effectively reducing the number of strategic warheads on hair-trigger alert to 880. (29)

Russia: Ballistic missiles have been on "zero" launch mission since 1997.

Russia has agreements with the US (May 1994), UK (February 1994), China (September 1994) de-targeting their missiles.

Russia retains the technical capability to launch their missiles within minutes. (30)

UK: Only one Trident submarine is on patrol at any time, with de-targetted missiles and a readiness of several days. (31)

France: Reportedly, France has reduced the readiness of its arsenal from minutes to days. No weapons have been targeted since 1997. (32)

China: The launch prepare time for the DF-31 is less than 15 minutes; the DF-5 ICBM requires 120 min (if mobile), or 45-60 min (in silo) . (33)

e) A diminished role for nuclear weapons in security policies to minimize the risk that these weapons ever be used and to facilitate the process of their total elimination.

US: The NPR, cornerstone of US nuclear policy, refers to nuclear weapons as "indispensable" to US national security.

Many critics also fear that the development of low-yield bunker busters, as advocated by many senior-level officials in the Bush administration, would dramatically lower the threshold for nuclear use.

Russia: Russia maintains the central role of deterrence in its national security strategy, as articulated in the National Security Concept, first developed by Boris Yeltsin in 1997 and updated and reaffirmed by Vladimir Putin in 2000.

The 2000 reaffirmation also lowered the threshold for nuclear weapon use. In 1997, the policy stated that nuclear weapons could be used only in "a threat to the very existence of the Russian Federation as an independent sovereign state." In 2000, the "very existence" language was removed, thereby allowing for nuclear weapon use in any conflict in which "all other measures...have been exhausted or proven ineffective."

The cornerstone of Russian nuclear policy focuses on defending the country from a nuclear attack by NATO.

UK: The White Paper released in December 2003 states that, "(t)he continuing risk from the proliferation of nuclear weapons, and the certainty that a number of other countries will retain substantial nuclear arsenals, mean that our minimum nuclear deterrent capability, currently represented by Trident, is likely to remain a necessary element of our security." (34)

"What I am affirming before you is that France, while remaining faithful to its concept of non-use, has and will conserve the means of maintaining the credibility of its deterrence in face of all new threats..."
- President Jacques Chirac, 8 June 2001

France: Nuclear deterrence remains a central component of French national defense, as outlined in the 1994 White Paper on Defense, Appended report 2003-2008 Military programme, "Arms control, disarmament, and non-proliferation: French policy." (35)

China: China views its nuclear arsenal- the smallest of the 5 recognized Nuclear Weapon States- as an important element in deterrence, although it repeatedly voices support for global elimination of nuclear weapons, as well as support for codification of Negative Security Assurances for Non-Nuclear Weapon States.

f) The engagement as soon as appropriate of all the Nuclear Weapon States in the process leading to the total elimination of their nuclear weapons

There has been no attempt- by any of the five NWS- to engage one another in the process leading to the total elimination of their nuclear weapons.

Step 10: Fissile materials under IAEA to remain permanently outside of military programs

Arrangements by all Nuclear Weapon States to place, as soon as practicable, fissile materials designated by each of them as no longer required for military purposes under IAEA or other relevant international verification and arrangements for the disposition of such material for peaceful purposes, to ensure that such material remains permanently outside of military programs.

US: The United States had downblended about 50 metric tons of its declared excess HEU stock of about 170 metric tons. (38)

Russia: By the end of 2003, Russia had downblended 200 metric tons of military HEU into LEU to be used as fuel in nuclear power reactors. (37)

UK: At the 2004 PrepCom, the UK announced that it has placed fissile material no longer required for defence purposes under international safeguards. It further declared that all enrichment and reprocessing facilities are now liable to international inspection, and that the UK has begun national historical accounting for fissile material produced. (38)

France: France did not declare any excess fissile materials.

China: China did not declare any excess fissile materials.

STEP 11: REAFFIRM ULTIMATE OBJECTIVE OF GENERAL AND COMPLETE DISARMAMENT UNDER EFFECTIVE INTERNATIONAL CONTROL

Reaffirmation that the ultimate objective of the efforts of the States in the disarmament process is general and complete disarmament under effective international control.

US: The US military budget constitutes nearly half of global military expenditures. In 2003, the US spent $417.4 billion, 47% of the world share.(39)

The US is party to the Biological Weapons Convention (BWC), though it did not support a Protocol to the BWC at the last Review Conference.

The US is party to the Chemical Weapons Convention (CWC) though not to the Ottawa (APM) Convention to prohibit anti-personnel landmines.

Russia: Russia is the world's 11th top military spender and the lowest of the nuclear 5; 2003 expenditures are estimated at $13 billion.

Russia is party to the BWC, CWC and the Ottawa Convention.

UK: In 2003, the UK spent $37.1 billion on military expenditures, ranking third highest in the world.

France: France is the world's fourth largest military spender with $35 billion spent in 2003.

China: China spent an estimate of $32.8 billion on military matters in 2003, ranking fifth in the world.

STEP 12: REPORTING

Regular reports, within the framework of the NPT strengthened review process, by all States parties on the implementation of Article VI and paragraph 4 (c) of the 1995 Decision on "Principles and Objectives for Nuclear Non-Proliferation and Disarmament", and recalling the Advisory Opinion of the International Court of Justice of 8 July 1996.

US: At the 2002 PrepCom, the US strongly objected to the inclusion of reporting in special time set aside for disarmament matters. Nevertheless, they continue to make general statements and offer "information papers" that could be viewed as informal reports.

Russia: Russia has not submitted an official report, though it refers to its statements as a "report".

UK: The UK has not submitted an official report, though it referred to the statement that it made during special time devoted to disarmament as a "report."

France: France joined the US in objecting to the inclusion of reporting at the first PrepCom in 2002, though it has signaled that it will submit a formal report at the 2005 Review Conference.

China: At the 2002 PrepCom, China agreed that "specifics, format and frequency" should be determined by the individual states. Its statements and working papers, outlining China's nuclear policy, can be considered an informal report.

STEP 13: DEVELOPMENT OF VERIFICATION CAPABILITIES

The further development of the verification capabilities that will be required to provide assurance of compliance with nuclear disarmament agreements for the achievement and maintenance of a nuclear-weapon-free world.

US: It is believed that the US is undertaking verification research at the Sandia National Laboratory, including the Cooperative Monitoring Center, and at the Lawrence Livermore Laboratory, but this research is classified and not publicly available.

The Verification and Control Technologies program at Sandia National Laboratory researches

and develops systems and technologies to help verify agreements for transparency and arms limitations and assist non-proliferation. At Los Alamos National Laboratory, there is also a Non-proliferation and Assessments program.

There are no verification measures called for under the Moscow Treaty.

Russia: There are no verification measures called for under the Moscow Treaty, partly due to Russian objections over warhead production and storage facilities inspections. US proposals for a data exchange mechanism under START III were rejected outright.

UK: At the Atomic Weapons Establishment laboratories at Aldermaston, the UK is conducting a program to enhance the efficacy of various warhead authentication work. They submitted a working paper on their progress (NPT/CONF.2005/PC.II/WP.1) to the 2003 PrepCom and will submit a full report at the 2005 conference.

The UK's paper on verification measures was based on recent studies conducted by the Ministry of Defence on the Chevaline, WE177 and Trident systems (the first two of which have been decommissioned). The study is based on the assumption that there will be "future arrangements seeking to reduce and ultimately eliminate stockpiles of nuclear weapons," and that capabilities to verify these arrangements will be necessary. The study has focused so far on warhead authentication, i.e. "establishing that an item declared to be a nuclear warhead or component from a warhead is consistent with those declarations." It indicates that such authentication is technically possible. Further work will cover the more difficult tasks of verifying warhead dismantlement, fissile material and its disposition, and the ongoing monitoring of nuclear complexes.

At the 2005 Review Conference, the UK will present on the range, technologies and approaches researched over the past five years. (40)

France: The French have not made public any research on verification programs that they might be undertaking. As the French have been dismantling the missile-based leg of their arsenal, just as the British are dismantling the Chevaline, they could be using this opportunity as the British are using theirs. However, no public information on this is available.

China: In 1999, the three main weapons laboratories in the US (Livermore, Los Alamos and Sandia) established an unofficial program of scientific interactions with China's nuclear weapon laboratories in support of verification.

There remains no public information on China's verification measures.

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United States of America

Date of first nuclear explosion- 16 July 1945

1. Amount, Location, and Operational Plan of Nuclear Weapons

Warhead	Yield (kilotons)	Number	Status
Strategic Weapons			
B61-7 Strategic	10* to 350	470	The Mod-7 is the only weapon in the strategic stockpile
B61-11	10-350	55	Mod-11 is an earth penetrator
B83/B81-1	low to 1,200	620	Strategic bomb replaced B28, B43, B53
W76/Trident I C4	100	3200	Under START I, over 1500 W76 warheads from retired Trident I SSBNs were used to arm Atlantic Fleet Trident II SSBNs
W88/Trident II D5	475	400	Warheads supplement the W76 warhead to arm Atlantic Fleet Trident II SSBNs
W62/Mintuteman II	170	615	Will be retired around 2009
W78/Minuteman III	335	920	300 will be used to arm single warhead MMIIIs by 2012
W87-0/MX	300	550	Missile will be retired, and 200 W87s used for single warhead MMIII by 2012
W80-1/ALCM	5 and 150	1400	Some 900 ALCMs are in storage with their warheads removed. W80s are used to arm ACMs
W80-1/ACM	5 and 150	400	Operational in 1991; The original program of 1,461 ACMs has been cut to 460; Uses W80 warheads from ALCMs
Tactical Weapons			
B61 Tactical Bomb	0.3 to 170	1290	Mods-3,-4,-10; Mod 10 is a converted W85 Pershing II warhead; each Mod has four yield options: the B61-3 (0.3, 1.5, 60 and 170 Kt), the B61-4 (0.3, 1.5, 10 and 45 Kt), and the B61-10 (0.3, 5, 10 and 80 Kt)
W80-0/SLCM	5 and 150	320	Nuclear SLCMs now stored ashore; Original program of 758 SLCMs for 200 ships and submarines was reduced to 367 SLCMs for 25 Sturgeon-class, 62 Los Angeles-class and 3 Seawolf-class attack submarines;
TOTAL			**~10,240**

**nuclear weapons with a yield under 10 kt are considered "low-yield" nuclear weapons*
from the Natural Resource Defense Council, http://www.nrdc.org/nuclear/nudb/datab12.asp

Deployment/Storage Sites

State	Location
New Mexico	Kirtland AFB
Georgia	Kings Bay
Washington	Bangor
Nevada	Nellis AFB
North Dakota	Minot AFB, Grand Folks
Wyoming	FE Warren AFB
Montana	Malmstrom AFB
Missouri	Whiteman AFB
Texas	Pantex Plant, Dyess AFB
Louisiana	Barksdale AFB
South Dakota	Ellsworth AFB
Colorado	Peterson AFB

Storage sites, including sites listed by state, are available at: http://www.nrdc.org/nuclear/tkstock/p1-52.pdf.

Foreign Deployment Sites

Country	Storage Sites	No. of Warheads
Germany	Büchel, Nöervenich, Ramstein	150
United Kingdom	RAF Lakenheath	110
Turkey	Incirlik	90
Italy	Aviano and Ghedi Torre	90
Netherlands	Volkel	20
Belgium	Klein Brogel	20
Total		**480**

from Kristensen, Hans. "US Nuclear Weapons in Europe: A Review of Post-Cold War Policy, Force Levels, and War Planning," *Natural Resources Defense Council*, February 2005.

The Role of Nuclear Weapons in National Security Strategies

Key documents: Nuclear Posture Review (January 2002), National Security Strategy (September 2002), National Strategy to Counter Weapons of Mass Destruction (December 2002)

Recent security policy documents such as these maintain the role of nuclear weapons in US national security policy, including the use of nuclear weapons in "immediate, potential or unexpected contingencies" against a number of named countries including Iraq, Iran, and North Korea.

The ***Nuclear Posture Review*** **(NPR)** establishes a New Triad, composed of:

- Offensive strike system (both nuclear and non-nuclear)
- Defenses (both active and passive)
- A revitalized defense infrastructure that will provide new capabilities in a timely fashion to meet emerging threats.

The ***National Security Strategy*** **(NSS)** calls for:

- "Proactive counterproliferation efforts…integrated into the doctrine, training, and equipping of our forces and those of our allies to ensure that we can prevail in any conflict with WMD-armed adversaries
- "Minimizing the effects of WMD use against our people…(to) help deter those who possess such weapons… the United States must also be prepared to respond to the effects of WMD use against our forces abroad";

The NSS also recognizes that deterrence is no longer "an effective defense" in a post-Cold War scenario. It asserts that "rogue states…see these (WMD) as their best means of overcoming the conventional superiority of the United States."

The ***National Strategy to Counter Weapons of Mass Destruction*** has three principal pillars:

- Counterproliferation: Interdiction, deterrence, defense and mitigation
- Strengthened Non-proliferation: Active non-proliferation diplomacy, multilateral regimes, non-proliferation and threat reduction cooperation, controls on nuclear materials, US export controls, non-proliferation sanctions;
- Consequence Management to Respond to WMD Use: Coordination of all federal efforts.

2. Activities specifically undertaken in accordance with Article VI of the NPT

Nuclear Weapons Reductions

- Reduced number of deployed strategic warheads to 6,000 by December 1991 as required by the START Treaty;
- Eliminated 1,032 launchers for intercontinental ballistic missiles and submarine-launched ballistic missiles, 350 heavy bombers;
- Eliminated nearly 90% of US non-strategic nuclear weapons and reduced the number of types of nuclear systems in Europe from 9 in 1991 to 1;
- Dismantled approx. 13,000 nuclear weapons since 1988;
- Halted production of plutonium for nuclear weapons in 1988;
- Halted nuclear explosive testing in 1992;
- Removed more than 200 tons of fissile material from military stockpile;
- Deactivated 28 of 50 MX ("Peacekeeper") ICBMs and removed four ballistic missile submarines from strategic service; complete elimination of MX missile expected by end 2005;
- Under the Strategic Offensive Reductions Treaty (SORT, a.k.a. Moscow Treaty), the US will reduce about 80% of strategic nuclear warheads deployed from 1991 levels by 2012.

As noted in A/RES/59/94 and in statement by Assistant Secretary of State Stephen G. Rademaker to the Third Sesion of the Preparatory Committee for the 2005 Review Conference of the Treaty on the Non-Proliferation of Nuclear Weapons, New York, May 3, 2004. available at: http://www.reachingcriticalwill.org/legal/npt/prepcom04/usarticleIV.pdf

Major Nuclear Weapons Facilities Shut Down

- Rocky Flats (plutonium pit production)
- Mound, Pinellas, Fernald (weapons components)
- Hanford (plutonium production/reprocessing)
- Savannah River, F Canyon (plutonium production reactors)
- Oak Ridge (uranium enrichment)

Other Facilities Shut Down

- Portsmouth uranium enrichment plant
- Fernald uranium metal production for reactor fuel and target rods

3. Location and capability of nuclear facilities

Power Reactors
Operational: 102
Shut down: 23
Decommissioned/Under Construction/Planned: 0
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 52
Shut Down: 107
Decommissioned: 68
Under Construction: 0
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Uranium Enrichment Facilities

After the enrichment plant at Portsmouth, Ohio, closed on May 11, 2001, the only remaining LEU facility is at Paducah, Kentucky.

In February 2004, the Nuclear Regulatory Commission (NRC) issued a license for United States Enrichment Corporation (USEC) to construct and operate a demonstration and test facility known as the Lead Cascade, to be located at Piketon, Ohio. USEC planned to submit an application in August 2004 for a commercial facility to be located in Piketon. Louisiana Energy Services (LES) submitted its application and environmental report in December 2003 for a commercial facility to be located in

Eunice, New Mexico. Under a Commission order, the NRC staff is to complete its review of the LES application by June 2006.
http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/enrichment.html

Uranium Mines

Site	Location	Status
Arizona 1	Arizona	standby
Canyon Mine	Arizona	idle
Wate property	Arizona	prospection halted
Pinenut mine	Arizona	idle
Cañon City mill	Colorado	operating
Scwartzwalder	Colorado	idle
Southwest CO (15)	Colorado	operating/halted
Sunday Mine Complex	Colorado	idle
Graysill	Colorado	no information
Whirlwind Claim	Colorado	under development
Crow Butte	Nebraska	operating
Big Red	Nebraska	exploration finished
Apex	Nevada	no information
Ambrosia Lake	New Mexico	idle
Churchrock	New Mexico	idle
Roco Honda	New Mexico	exploration finished
Noserock	New Mexico	exploration finished
Crownpoint	New Mexico	idle
Hosta Butte	New Mexico	no information
La Jara Mesa	New Mexico	no information
Marquez	New Mexico	no information
Mt. Taylor	New Mexico	exploration finished

Site	Location	Status
Alta Mesa	Texas	exploration finished
Alta Mesa	Texas	exploration finished
Aurora	Oregon	exploration halted
Bullfrog	Utah	exploration finished
Dewey/Burdock	Oregon	exploration finished
El Mesquite	Texas	reclamation ongoing
Hobson U plant	Texas	idle
Hobson U plant	Texas	idle
Hot Rock	Utah	no information
Kingsville	Texas	idle
La Sal	Utah	idle
Noserock	New Mexico	exploration finished
Ram Claims	New Mexico	exploration halted
Rim Mine	Utah	idle
Rio Puerco	New Mexico	no information
Rio Puerco	New Mexico	no information
Roco Honda	New Mexico	exploration finished
Rosita	Texas	idle
San Rafael River	Utah	no information
Shootaring Canyon	Utah	idle
Tony M	Utah	idle
Vasquez	Texas	operating

Uranium Mines continued

Site	Location	Status
Antelope	Wyoming	exploration halted
Cedar Rims	Wyoming	no information
Charlie	Wyoming	exploration finished
Ford	Washington	idle
Frank M	Utah	exploration finished
Velvet mine	Utah	idle
White Mesa	Utah	idle

Site	Location	Status
Christensen	Wyoming	reclamation ongoing
Copper Mt.	Wyoming	no information
Cyclone	Wyoming	exploration halted
East Shirley	Wyoming	no information
Gas Hills	Wyoming	under development
Highland	Wyoming	operating
JAB	Wyoming	exploration halted

http://www.antenna.nl/wise/uranium/uousa.html

Nuclear Facilities

Lynchburg, VA- fuel fabrication
Erwin, TN- uranium processing and fuel fabrication
Savannah River Site, SC- reprocessing; some uranium processing
Y-12 plant at Oak Ridge, TN- weapons-related processing
Portsmouth, OH- uranium enrichment
Redox plant, Hanford- military reprocessing: closed.
Paducah, KT- uranium enrichment
Metropolish, IL- uranium hexaflouride conversion facility

In March, 2005, the Nuclear Regulatory Commission authorized the construction of a facility at the Savannah River Site in South Carolina to manufacture mixed plutonium and uranium oxide (MOX) fuel for use in commercial nuclear power plants, the first MOX fuel fabrication facility in the US.

In February 2005, a federal licensing board approved a proposed nuclear waste dump on the Skull Valley Goshute Indian reservation, about 50 miles southwest of Salt Lake. The State of Utah will continue to fight the facility, either through another appeal to the board, in court or before the regulatory commission.
Reed, Travis, "Board Backs Nuclear Waste Dump in Utah," *Seattle Post Intelligencer*, February 24, 2005.

4. Fissile Material holdings

Military Stocks of Fissile Materials
Plutonium: 45-49 tons
HEU: 530-630 tons

Declared Excess
Plutonium: 52.5 tons
HEU: 123 tons
http://www.isis-online.org/global_stocks/bulletin_albright_kramer.pdf

Separated Civil Plutonium: 4-5 tons
http://www.isis-online.org/global_stocks/separated_civil_pu.html

Cumulative Plutonium Discharges from Civilian Power Reactors: 390 tons
http://www.isis-online.org/global_stocks/civil_pu.html#table7

Radioactive Waste Management
Low-level waste: There are three existing low-level waste disposal facilities in the United States in Barnwell, South Carolina, Richland, Washington and Clive, Utah, where LLW are buried in near-surface shallow trenches, usually in the containers in which they were shipped.
http://www.nrc.gov/reading-rm/doc-collections/nuregs/brochures/br0216/r2/

High-level waste: Currently, most high-level radioactive waste is stored at the reactor sites. Plans for the underground engineered repository at Yucca Mountain, Nevada, continue to face delays and problems. Most recently, the project encountered one of its greatest setbacks when technical and environmental studies were proved falsified in spring, 2005.

5. Nuclear activities

Research Programs
The Department of Energy (DoE) has plans for two research programs: Generation IV (GenIV) and Advanced Fuel Cycle Initiative (AFCI), to identify, design and deploy new and advanced commercial nuclear power reactor and fuel cycle technologies.

The DoE's Office of Nuclear Energy claimed in September 2003 that the first commercial Gen IV reactor could be deployed between 2020 and 2035.

Under the DoE's Nuclear Power 2010 program, it hopes to complete two new nuclear power plants by the end of the decade. Under the Vision 2020 plan, the Nuclear Energy Institute hopes to generate 50 GW of new US capacity by 2020 despite strong misgivings from some in the scientific and environmental communities.
(http://www.nrdc.org/nuclear/bush/freprocessing.asp)
(http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2002/Documents/Documents/USA%202002.pdf)

Nuclear Cooperation
Under the 1950s-era Atoms for Peace program, the United States would lease HEU to foreign countries with the explicit provision that the spent fuel would be returned to the US for treatment and disposal. In 1964, this policy was revoked.

In May 1996, the DoE initiated a program, now known as the Foreign Research Reactor Spent Fuel Acceptance Program, whereby the US recovers foreign research reactor spent fuel containing HEU produced in the US. This program covers about 30% of the US-produced HEU, which had been provided to foreign countries.
Memorandum for the Secretary, from Gregory H. Friedman, Inspector General, "Audit Report on 'Recovery of Highly Enriched Uranium Provided to Foreign Countries,'" February 9, 2004.

The DoE organized the Generation IV International Forum- 10 countries to jointly develop six nuclear energy systems: South Africa, Argentina, Brazil, South Korea, Switzerland, Japan, Canada, United Kingdom, France, and US. In February, 2005, only five participants of the Forum- the United States, United Kingdom, Japan, France and Canada- signed the agreement to proceed with the Gen IV program. The agreements listed below are in the Gen IV framework.

Brazil: Agreement (20 June 2003) including cooperation on advanced reactor developments;

advanced reactor fuel and reactor fuel cycle-integration; life management and upgrading of current operating reactors; advanced fuel and material irradiation and use of experimental facilities; environmental and safety issues related to new reactor and fuel cycle technologies; and fundamental areas of nuclear engineering and science.

Canada: Agreement (17 June 2003) to collaborate on seven projects totaling approximately $20 million. The projects range in duration from two to four years and will focus on: Hydrogen Production by Nuclear Systems; Sustainable and Advanced Fuel Cycles; Supercritical-Water-Cooled Reactor Concepts;

EU: Agreement (24 February 2004) to collaborate on eight new projects, at approximately $2 million per year, including but are not limited to: Fuels & materials research and development for advanced nuclear reactors; Advanced Reactor design and engineering development; Research and development related to the transmutation of high-level nuclear waste; Transmutation related systems analyses.

France: Agreement (10 July 2001) to collaborate on eleven new projects totaling approximately $28 million over three years, focusing on: Advanced Gas-Cooled Fast Reactor; Hydrogen Production by Nuclear Systems; Advanced Fuels and Materials Development;

Japan: Agreement (24 November 2004) to collaborate on their first project titled "Development of Materials for Supercritical-Water-Cooled Reactor (SCWR)".

South Korea: Agreement (16 May 2001) agreed to collaborate on six new projects totaling approximately $12 million over three years, focusing on: Advanced Gas-Cooled Fast Reactor; Hydrogen Production by Nuclear Systems; Advanced Fuels and Materials Development; Supercritical-Water-Cooled Reactor Concepts.

6. International non-proliferation efforts

The US is also a participant in the G8 Global Partnership against the spread of weapons and materials of mass destruction, launched in Kananaskis, Canada 2002.

Treaties Signed and Ratified, Date of Deposit

Agreement Between the United States of America and the Union of Soviet Socialist Republics on Notification of Launches of Intercontinental Ballistic Missiles and Submarine-Launched Ballistic Missiles, 31 May 1988
Antarctic Treaty, 18 August 1960
Biological Weapons Convention, 26 March 1975
Certain Conventional Weapons Convention, 24 March 1995
Chemical Weapons Convention, 25 April 1997
Comprehensive Nuclear Test-Ban Treaty (not ratified)
Convention on the Physical Protection of Nuclear Material, 1980
The Intermediate Nuclear Forces Treaty, 1 June 1988
Nuclear Non-Proliferation Treaty, 5 March 1970
Outer Space Treaty, 10 October 1967
Sea Bed Treaty, 18 May 1972
Strategic Offensive Reductions Treaty, 6 March 2003
Treaty of Pelindaba Protocol, 11 April 1996
Treaty of Rarotonga Protocol, 25 March, 1996
Treaty of Tlatelolco Protocol, 12 May 1971

The US signed the IAEA Additional Protocol 12 June 1998, but has not completed ratification process.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Nuclear Suppliers Group
Proliferation Security Initiative
Wassenaar Arrangement
Zangger Committee

7. Positions taken in international fora on various issues of disarmament

Fissile Material: "The negotiation of a legally binding treaty banning the production of fissile material for nuclear weapons or nuclear explosive devices is a goal that the international community long has endorsed as an important step to reduce nuclear dangers. At the same time, the United States has concluded that effective international verification of an FMCT is not realistically achievable. Our delegation calls on the CD to begin such negotiations as soon as possible after it reconvenes in January." - **Statement by Assistant Secretary of State Stephen G. Rademaker to the Third Session of the Preparatory Committee for the 2005 Review Conference of the Treaty on the Non-Proliferation of Nuclear Weapons, New York, 3 May 2004**.
http://www.reachingcriticalwill.org/legal/npt/prepcom04/usarticleIV.pdf

Additional Protocol: "We must ...make signature of the Additional Protocol a condition of nuclear supply by the end of 2005." - **Statement by Jackie W. Sanders, Permanent Representative of the United States Delegation to the Conference on Disarmament, Geneva, 26 February 2004**.
http://www.reachingcriticalwill.org/political/cd/speeches04/26FebUSA.pdf

Negative Security Assurances: "We wish to make clear, however, as we have made clear in other contexts, that the United States continues to oppose any proposal for an NSA treaty, or other global, legally binding security assurances regime." **United States explanation of vote in the 58th session of the General Assembly First Committee, on draft resolution 58/L.8 "Conclusion of effective international arrangements to assure non-nuclear weapon States against the use or threat of use of nuclear weapons"; October 2003**.
http://www.reachingcriticalwill.org/political/1com/1com03/voting/L8USEoV.htm

Fuel Cycle: "We will help nations end the use of weapons-grade uranium in research reactors... The world's leading nuclear exporters should ensure that states have reliable access at reasonable cost to fuel for civilian reactors, so long as those states renounce enrichment reprocessing. Enrichment and reprocessing are not necessary for nations seeking to harness nuclear energy for peaceful purposes." - **Statement by the President of the United States of America, circulated as official text to the Conference on Disarmament, 12 February 2004.**

Russian Federation

Date of first nuclear explosion- 29 August 1953

1. Amount, Location and Operational Plan of Nuclear Weapons

Strategic weapons

Missile	Name	Yield (kilotons)	Number (warheads)
SS-18	Satan	550-750	1,000
SS-19	Stiletto	550	150
SS-24 M1	Scalpel	550	300
SS-25	Sickle	550	40
Total			**2,270**

Tactical weapons

Missile	Name	Yield (kilotons)	Number (warheads)
SS-N-18 M1	Stingray	200	288
SS-N-23	Skiff	100	384
Total			**672**

Bombers

Missile	Name	Launchers	Number (warheads)
Tu-95 MS6	Bear H6	32	192
Tu-95 MS16	Bear H16	32	512
Tu-160	Blackjack	14	168
Total		**78**	**872**

Total	**3,814**

Deployment Storage Sites
Missile sites (19)
Aleysk, Dombraovskiy, Kartaly, Ushar, Kozelsk, Tatischevo, Bershet, Kostroma, Krasnoyarsk, Drovyanaya, Irkustsk, Kansk, Nizhniy, Tagil, Novosibirks, Teykobo, Vypolzovo, Yoshkar-Ola, Yurya

SSBN sites
Gadzhiyevo, Rybachi, Severodvinsk

The Role of Nuclear Weapons in National Security Strategy
On 10 January 2000, Acting President Vladimir Putin signed the new National Security Concept (NSC) of the Russian Federation, an updated version of the NSC signed by President Boris Yeltsin in 1997. The broad guidelines outlined in the NSC are developed in further detail in the Military Doctrine, approved in May, 2000.

The key articles of the NSC pertaining to nuclear weapons are the following:

1) "The most important task of the Russian Federation is to implement deterrence in the interests of preventing aggression on any scale, including with the use of nuclear weapons, against Russia and its allies."
2) "The Russian Federation should possess nuclear weapons capable of guaranteed infliction of a predetermined damage to any aggressor state or coalition of states under any circumstances."
3) It also upholds the right to "the use of all forces and means at its disposal, including nuclear weapons, in case it needs to repel an armed aggression, if all other measures of resolving the crisis sit-

uation have been exhausted or proved ineffective."

This implies a provision of use of nuclear weapons to deter smaller-scale wars that do not necessarily threaten Russia's existence and sovereignty- a revision from the previous concept outlined in 1997. The new mission also implies a limited use of nuclear weapons in contrast to an all-out nuclear strike in response to a massive attack.
http://www.nti.org/db/nisprofs/over/concept.htm

The cornerstone of current Russian nuclear policy focuses on defending the country from a nuclear attack by NATO. On March 25, 2004, Defense Minister Sergei Ivanov announced that Russia is considering revising its nuclear policy in light of NATO expansion and its "current offensive military doctrine". http://www.interfax.ru/e/B/0/28.html?id_issue=9683208

2. Activities Specifically Undertaken in Accordance with Article VI of NPT

The 2000 NSC confirms Russia's intention to implement arms control agreements, in particular noting its intent to "adapt the existing arms control and disarmament agreements to the new conditions in international relations, as well as develop, as necessary, new agreements, first of all with respect to confidence and security building measures." http://www.nti.org/db/nisprofs/over/concept.htm

Nuclear Weapons Reductions
Under the Moscow Treaty, Russia withdrew approximately 60 ballistic missiles from operational service. Russia also plans to withdraw most of the multiple-warhead SS-18 and -19 missiles, decreasing the total number of ICBMs by nearly 70% over the next five years.

Program Truncations
By 2008, all SS-18 missiles will be withdrawn from service. Remaining heavy missiles, the SS-18/RS-20V, will remain in service for 10-15 years. http://www.russianforces.org/eng/news

Russia will reduce the types of active ICBMs from five to two.
Norris, Robert S. and Hans M. Kristensen, "Russian nuclear forces, 2005," NRDC: Nuclear Notebook. http://www.thebulletin.org/article_nn.php?art?ofn=ma05norris

Nuclear Systems Retired
In 2005, Russia's Strategic Rocket Forces will have completed retiring allSS-24 rail-mobile missiles. http://www.russianforces.org/eng/news

With an increase of SS-27 Topol Ms in the arsenal, the SS-25 will be completely retired, perhaps by 2009.

The Typhoon-class SSBN was decommissioned at the end of April, 2004, retiring the 10-warhead capable SS-N-20 SLBM.
Norris, Robert S. and Hans M. Kristensen, "Russian nuclear forces, 2005," NRDC: Nuclear Notebook. http://www.thebulletin.org/article_nn.php?art?ofn=ma05norris

3. Location and Capability of Nuclear Facilities

Power Reactors
Operational: 30
Shut down: 4
Decommissioned: 0
Under construction: 4
Planned: 0

Research Reactors
Operational: 57
Shut down: 28
Decommissioned: 11
Under construction: 1
Planned: 0

http://www.iaea.or.at/programmes/a2/ http://www.iaea.or.at/worldatom/rrdb/

Nuclear weapons facilities

Name	Location	Purpose
All Russian Scientific Research Institute for Experimental Physics (VNIIEF)	Sarov	nuclear warhead research and development
All Russian Scientific Research Institute for Technical Physics (VNIITF)	Snezhinsk	nuclear warhead research and development
All Russian Research Institute of Automatics (VNIIA)	Nizhniy Novgorod	nuclear warhead research
Research Institute of Pulse Technology (NIIPT)	Moscow	nuclear warhead research
Design Bureau of Automotive Transport Equipment	Moscow Oblast	nuclear warhead research
Fourth Central Scientific Research Institute of the Strategic Rocket Forces	Moscow	delivery vehicle research and development
Russian Academy of Sciences Institute of Mathematical Modeling	Moscow	computer modeling of nuclear explosions and R&D
Mayak Production Association	Ozersk	weapons-grade fissile material, including tritium, production
Mining and Chemical Combine	Zheleznogorsk	weapons-grade fissile material production
Siberian Chemical Combine	Seversk	weapons-grade fissile material production
Electrochemical Plant	Zelenogorsk	weapons-grade HEU production
Urals Electrochemical Combine	Novouralsk	weapons-grade HEU production
Novosibirsk Chemical Concentrates Plant	Novosibirsk	Fissile material from dismantled warheads storage site
Mayak Fissile Material Storage Facility	Seversk	storage and disposition for HEU and plutonium from dismantled warheads
Avangard Electromechanical Plant	Sarov	warhead assembly
Elektrokhimpribor Combine	Lesnoy	warhead assembly
Instrument-Making Plant	Trekhgornyy	warhead assembly
Start Production Association	Zarechnyy	warhead assembly
Molniya Production Association	Moscow	production of warhead casings and support equipment

Russia also plans to build a new MOX fabrication plant at Seversk, Siberia.
http://www.isis-online.org/global_stocks/separated_civil_pu.html

Uranium Mines

Location	Purpose	Status
Streltsovskoye	mine	operating
Tulukuevskoye	mine	closed
Krasny Kamen	mine	closed
Sanarskoye	mine	closed
Beshtau	mine	closed
Sharadyk	mine	closed
Stepnoe	mine	closed
Bykogorskoye	mine	closed
Krasnokamensk	waste rock deposit	operating
Zauralsky	waste rock deposit	decommissioned
Lermontovsky	waste rock deposit	reclamation underway
Krasnokamensk	mill tailings deposit	operating
Malyshevsk	mill tailings deposit	closed
Lermontovsky	mill tailings deposit	reclamation ongoing
Dolmatovskoye	in situ leach facilities	under construction
Beshtau	in situ leach facilities	closed
Bykogorskoye	in situ leach facilities	closed

Russia may construct new large uranium-mining enterprises in South Yakutia, with production begun by 2015. If exploited, the deposits in these areas will double uranium production from the current 2200-2500 tons to 4000-4500 tons by 2010.
http://www.antenna.nl/wise/

On January 10, 2005, nuclear power minister Alexander Rumyantsev announced that a program on uranium mines development in Kazakhstan, Uzbekistan and Ukraine should be drafted for many years ahead. http://www.bellona.no/en/international/russia/nuke_industry/co-operation/36889.html

4. Fissile Material Holdings

Military Stocks of Fissile Materials
Plutonium- 70-120 tons
Excess plutonium- 50 tons
HEU- 473-1073 tons
http://www.isis-online.org/global_stocks/bulletin_albright_kramer.pdf

Declared Excess
Plutonium- 50 tons (including 34 tons under Trilateral Agreement- *see Nuclear Weapon States' Compliance chapter, p.7*)
HEU- 300 tons

Unirradiated Civil Plutonium
In country- 37.2 tons
In other countries- 0.6 tons
Total- 37.8 tons

Separated Civil Plutonium (in and out of country)- no firm plans for civil MOX
50 tons (projected through 2020)
http://www.isis-online.org/global_stocks/separated_civil_pu.html

Cumulative Plutonium Discharges from Civilian Power Reactors: 100 tons (end 2002)
http://www.isis-online.org/global_stocks/civil_pu.html#table7

Radioactive Waste Management
Low-level waste: Some LLW are condensed by evaporation and recyled; other waste is solidified and buried in concrete burial units or trenches. Untreated LLW are injected underground into porous rocks surrounded by clay.

High-level waste: Spent nuclear fuel is stored on-site, vitrified or converted into solid form.

Reprocessing takes place at Chelyabinsk-65, with a second facility scheduled for start up at Krasnoyarsk this year.

Russia is currently investigating several regions as potential sites for deep geologic disposal plans.
http://www.ocrwm.doe.gov/factsheets/pdf/doeymp0414.pdf

5. Nuclear Activities

Nuclear Research Centers
Budker Institute of Nuclear Physics
Center for Arms Control, Energy & Environmental Studies
Dubna Joint Inst for Nuclear Research
Federal Nuclear Center Snezhinsk - Chelyabinsk 70
Flerov Laboratory of Nuclear Reactions
IBRAE - Nuclear Safety Inst
INR - Inst for Nuclear Research
IPPE - Inst for Physics & Power Engineering
IPPE Fission, Fusion & Laser Studies Dept.
Khlopin Radium Inst
Kurchatov Inst
Moscow Power Engineering Inst
Research Inst of Atomic Reactors
Russian Academy of Sciences
SIA Radon
St Petersburg Nuclear Physics Inst
Troitsk Institute for Innovation & Fusion Research
VNIIEF - Sarov Inst of Experimental Physics
VNIIT - Inst of Technical Physics
VNIITF
http://www.radwaste.org/research.htm

Nuclear Cooperation
India: Agreement to construct two reactor units at Kundakulam with an option to construct four more.

China: Supply of experimental fast breeder reactor based on Russia's BN-699; completion of enrichment facility.

Syria: Agreement to construct research reactor

Libya: Contract to modrenize Tajurah research reactor
Statement by Igor Khripunov, Associate Director, Center for International Trade and Security, University of Georgia at the Russian American Nuclear Security Advisory Council Congressional Strategic Stability and Security Seminar Series, July 19, 2002, available at:
http://www.ransac.org/Issues/Russian%20International%20Nuclear%20Cooperation/Other/seminar4_writeup2.html

Iran: Agreement to supply fuel for the Bushehr plant, signed February 27, 2005.

Indonesia: On August 16, 2003, cooperation agreement including: development, design, construction and operation of research reactors and nuclear power plants including small power plants that comprise the floating nuclear power units, and R&D; facilities and accelerators for irradiation in medicine and industry; administrative and scientific personnel training and retraining; the state regulation of nuclear and radiation safety. The agreement is to be concluded for 10 years with automatic extension for the next five-year period. http://www.bellona.no/en/international/russia/nuke_industry/co-operation/31260.html

Romania: In March, 2003, Russian Prime Minister Mikhail Kasyanov announced that Russia will provide a loan to Romania for the construction of two nuclear reactors.

http://www.bellona.no/en/international/russia/nuke_industry/co-operation/channel15203n25s0_.html

Bulgaria: Plans to construct a unit at the Belina nuclear power plant.
http://www.bellona.no/en/international/russia/nuke_industry/co-operation/36913.html

6. International Non-proliferation Efforts

In the 2000 National Security Concept, proliferation is included as a separate plank in the list of threats to national security, demonstrating Russia's priority with non-proliferation and arms control. The concept also lists among priorities "measures to ensure international control over the export of military and dual-use products, technologies, and services." http://www.nti.org/db/nisprofs/over/concept.htm

Russia is also a participant in the G8 Global Partnership against the spread of weapons and materials of mass destruction, launched in Kananaskis, Canada 2002.

Treaties Signed and Ratified
Agreement Between the United States of America and the Union of Soviet Socialist
Republics on Notification of Launches of Intercontinental Ballistic Missiles and Submarine-Launched Ballistic Missiles, 31 May 1988
Antarctic Treaty, 2 November 1960
Certain Conventional Weapons Convention, 10 June 1982
Comprehensive Nuclear Test-Ban Treaty, 30 June 2000
Nuclear Non-Proliferation Treaty, 5 March 1970
Outer Space Treaty, 10 October 1967
Sea Bed Treaty, 18 May 1972
Strategic Offensive Reductions Treaty, 6 March 2003
Treaty of Pelindaba Protocol, not yet deposited
Treaty of Rarotonga Protocol, 21 April 1988
Treaty of Tlatelolco Protocol, 8 January 1979

Russia signed the IAEA Additional Protocol on 22 March 2000 but it has not yet entered-into-force.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct
Missile Technology Control Regime
Nuclear Suppliers Group
Proliferation Security Initiative
Wassenaar Arrangement
Zangger Committee

7. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Universality: "Despite all the difficulties and growing skepticism, we hould not slacken our efforts toward making the NPT truly universal. We must engage in a joint search for ways and means of bringing the states remaining outside of the Treaty scope in the nuclear non-proliferation regime. I am referring, in particular, to expanding the IAEA verification activity in those states' territoriees, strengthening national legislations in the field of accounting, verification and physical protection of the nuclear materials, as well as export control measures. We expect the governments of those states to realize the great responsibility they bear for the nuclear non-proliferation regime." - **Statement by**

H.E. Anatoly Antonov to the Third Preparatory Committee of the 2005 Review Conference of the NPT, New York, 28 April 2004, available at: http://www.reachingcriticalwill.org/legal/npt/prepcom04/russia27.pdf

General and complete disarmament: "In our view, general and complete nuclear disarmament is a goal to which we should move in a phased manner, on the basis of a comprehensive approach and without putting forward unrealisitic goals or targets. Nuclear disarmament, including non-strategic nuclear arms reductions, may not be pursued in isolation from other types of weapons or outside of the overall political situation in the world...I believe that the relevant provision of the Final Document of the previous Review Conference is worth mentioning, namely, that nuclear disarmament steps should be pursued 'in a way that promotes international stability and based on the principle of undiminished security for all.'"- **Statement by H.E. Anatoly Antonov to the Third Preparatory Committee of the 2005 Review Conference of the NPT, New York, 28 April 2004, available at:** http://www.reachingcriticalwill.org/legal/npt/prepcom04/russia27.pdf

Nuclear Disarmament: "The central role in strengthening the regime of nuclear non-proliferation is played by the NPT. Russia strictly and consistently implements its obligations and initiatives in nuclear disarmament, particularly within the framework of Article VI of the Treaty. Our practical deeds are there to prove it... We believe that a step-by-step advance toward comprehensive and total nuclear disarmament based on a comprehensive approach is needed with no unreal benchmarks and objectives to be proposed. Nuclear disarmament cannot be conducted outside the context of the situation with other kinds of weapons and without taking into account political developments in the world and particularly in Europe including evolution and enlargement of military-political alliances." **- Statement by Ambassador Leonid A. Skotnikov to the 59th session of the General Assembly First Committee, 5 October 2004**.
http://www.reachingcriticalwill.org/political/1com/1com04/statements/Russia.pdf

United Kingdom

Date of first nuclear explosion- 3 October 1952

1. Amount, Location, and Operational Plan of Nuclear Weapons

Weapon System	No. deployed	Range (km)	Yield	Type	No. in stockpile
Trident II D-5 (SLBM)	64	7,400	100 Kt	MIRV	200

http://www.nrdc.org/nuclear/nudb/datab18.asp

The US also maintains 110 tactical nuclear weapons at RAF Lakenheath. Kristensen, Hans. "US Nuclear Weapons in Europe: A Review of Post-Cold War Policy, Force Levels, and War Planning," Natural Resources Defense Council, 2005. http://www.nrdc.org/nuclear/euro/euro.pdf

Deployment/Storage Sites
Coulport- underground warhead storage facility
Faslane- operational ballistic missile submarine base

Production Sites
Burghfield- nuclear weapon research or production site
Aldermaston- nuclear weapon research or production site
Sellafield- plutonium production site
Chapelcross- tritium production facility
http://nuclearweaponarchive.org/Uk/UKFacility.html

The Role of Nuclear Weapons in National Security Strategy
British national security is based primarily on the Strategic Defence Review (SDR), originally published in 1998, and reaffirmed and updated with "A New Chapter" in 2002. The SDR defines deterrence not "on the size of other nation's arsenals but on the minimum necessary to deter any threat to our vital interests." Furthermore, the SDR states that "We have concluded that we can safely make further significant reductions from Cold War levels, both in the number of weapons and in our day-to-day operating posture." http://www.mod.uk/issues/sdr/deterrence.htm

Under the SDR, only one SSBN will be on patrol at any time, carrying a reduced load of 48 warheads- half the Conservative Government's announced ceiling of 96.

The submarine on patrol will be at a reduced alert state and will carry out a range of secondary tasks; its missiles will be detargeted, and after notice the SSBN will be capable of firing its missiles within several days rather than within several minutes, as they were during the cold war.

UK is also a member of the NATO Strategic Concept, unveiled in April 1999. NATO affirmed its intention to maintain nuclear forces for the indefinite future.

2. Activities Specifically Undertaken in Accordance with Article VI of NPT

Nuclear Weapons Reductions
Since dismantling the last Chevaline warhead in 2002, the UK has not undertaken any further cuts to their arsenal.

The SDR holds UK's nuclear weapons arsenal at fewer than 200 operationally available warheads.

Program Truncations
The SDR calls for the purchase of 58 rather than 65 Trident II D-5 missiles from the United States.

Nuclear Systems Retired
After the last WE177 warhead was retired, only Trident II warheads remain in the UK arsenal. The UK has no tactical nuclear capabilities as of 1999.

3. Location and Capability of Nuclear Facilities

Power Reactors
Operational: 23
Shut down: 22
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 3
Shut down: 6
Decommissioned: 27
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Details on the decommissioning process can be found at: http://www.ukaea.org.uk/dounreay/index.htm

Uranium Mines- 0

Uranium Enrichment Facilities
URENCO E22, E23 & A3 plant at Capenhurst;
Drigg, Cumbria (part of the Sellafield complex);
BNFL Springfields facility, near Preston (conversion and fuel fabrication)
URENCO Capenhurst uranium processing complex (enrichment)

Reprocessing Facilities
Sellafield is one of the largest commercial nuclear sites, with facilities for waste management, reprocessing, recycling, MOX fuel fabrication, decommissioning and waste storage.

4. Fissile Material Holdings

Military Stocks of Fissile Materials
- Plutonium- 7.6 tons
- Weapons grade uranium equivalent- 21.9 tons
- other forms of uranium- 15,000

Strategic Defence Review, 1998: http://www.mod.uk/issues/sdr/wp_contents.htm

Plutonium Declared Excess- The MoD site states that the UK declared 0.3 tons to be in excess, http://www.mod.uk/publications/nuclear_weapons/aldermaston.htm while the independent Institute for Science and International Security records 4.4 tons of plutonium declared excess.
http://www.isis-online.org/global_stocks/separated_civil_pu.html

HEU Declared Excess- the UK has not declared any HEU to be in excess. http://www.isis-online.org/global_stocks/plutonium_watch2004.html

Unirradiated Civil Plutonium (end of 2002)
- 90.8 tons (in country)
- 0.9 tons (holdings in other countries)
- 20.9 tons (foreign-owned, in country)

Irradiated Plutonium (end of 2003): 39 tons

http://www.isis-online.org/global_stocks/plutonium_watch2004.html

Radioactive Waste Management
Low-level waste: Low-level waste is sent to the disposal facility at Drigg. Dounreay LLW is stored on site and options are being considered for managing future arisings from decommissioning the site.

At Dounreay, a new Waste, Receipt, Characterisation and Supercompaction (WRACS) plant will manage solid low-level waste.

Intermediate-level waste: Intermediate-level waste is conditioned for long-term storage. A new ILW Vault Store is being commissioned at Harwell. ILW from the existing tube stores will be recovered and repackaged for long-term storage in the Vault Store. At Winfrith, a new treatment plant and refurbished store is being prepared for the sludges from the Steam Generating Heavy Water Reactor.

High-level waste: In the absence of a national disposal facility, high-level waste is stored at facilities at Sellafield and Dounreay. http://www.ukaea.org.uk/waste/new_waste.htm

5. Nuclear Activities

Nuclear Research Centers
AWE: Atomic Weapons Establishment
CECWM: Centre for Environmental Control and Waste Management
Centre for Waste and Pollution Research
CLRC Daresbury Laboratory
EIA Centre
EPSRC: Engineering and Physical Sciences Research Council
The Geo-environmental Research Centre
IACMST: Inter-Agency Committee on Marine Science and Technology
The Institute of Energy
ISIS Pulsed Neutron and Muon Source
JET: Joint European Torus
MSSL: Mullard Space Science Laboratory
Natural Environment Research Council
NP: National Physical Laboratory
Nuclear Structure Research Group
PRBNet: Permeable Reactive Barrier Network
UKAEA: UK Atomic Energy Authority
UKCEED: Centre for Economic and Environmental Development
http://www.radwaste.org/research.htm

Nuclear Cooperation Programs

Russia: The UK is a member of the Contact Expert Group (CEG) administered by the IAEA. Established in 1995, the CEG aims to "enhance safety of waste management in Russia and to promote international cooperative efforts aimed at resolving radioactive waste management issues." http://www.uic.com/au/nip12.htm

EU: The UK is a member of Euratom which aims to provide a common market in nuclear materials, to ensure nuclear fuel supplies, and to guarantee that nuclear materials are not diverted from their intended purpose. Euratom has signed bilateral co-operation agreements to ease trade with its major partners. It also operates a comprehensive regional system of safeguards designed to ensure that materials declared for nuclear energy are not diverted to military use.

Nuclear Weapons

The UK has always had close cooperation with the US in its nuclear weapons program, including:

- "warhead design and safety - the UK Trident warhead is closely based on one of the US Trident warheads (the W76);
- leasing of missiles - the UK has access to (but does not own) a pool of Trident II D5 missiles manufactured by US defense company Lockheed Martin;
- Britain has cooperative programs with all three major US nuclear weapons laboratories, including assistance with stockpile stewardship;
- since the purchase of Polaris, Britain's strategic nuclear force has been 'committed to NATO and targeted in accordance with Alliance policy and strategic concepts under plans made by the Supreme Allied Command Europe (SACEUR)'. NATO's concept of nuclear deterrence, is in turn, based predominantly on US nuclear doctrine. NATO nuclear targeting strategy, for example, is carried out in accordance with US nuclear doctrine."

BASIC: http://www.basicint.org/nuclear/UK_Policy/trident_IDpresentation.htm

6. International Non-proliferation Efforts

The UK is also a participant in the G8 Global Partnership against the spread of weapons and materials of mass destruction, launched in Kananaskis, Canada 2002.

Treaties Signed and Ratified

Antarctic Treaty, 31 May 1960
APM Convention, 31 July 1998
Biological Weapons Convention, 26 March 1975
Certain Conventional Weapons Convention, 13 February 1995
Comprehensive Nuclear Test-Ban Treaty, 6 April 1998
Nuclear Non-Proliferation Treaty, 29 November, 1968
Outer Space Treaty, 10 October 1967
Treaty of Pelindaba Protocol, 19 March 2001
Treaty of Rarotonga Protocol, 19 September 1997
Sea-Bed Treaty, 18 May 1972
Treaty of Tlatelolco Protocol, 11 December 1969

Multilateral Groups

Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Nuclear Suppliers Group
Proliferation Security Initiative
Wassenaar Arrangement
Zangger Committee

UK ratified the IAEA Additional Protocol 30 April 2004.

7. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Negative Security Assurances: "Our position on NSAs has not changed. We remain committed to our negative security assurance as we gave it in 1995, as noted in UN Security Council Resolution 984. In addition, the UK has given NSAs through the Protocols it has signed to NWFZ Treaties. Since 2000 the UK has signed and ratified the relevant protocols to the Treaties of Raratonga and Pelindaba... We believe that these commitments already give Non-Nuclear Weapon States the assurances they seek." - **Statement by H.E. Ambassador David Broucher, Permanent Representative of the United**

Kingdom of Great Britain and Northern Ireland, NPT Preparatory Committee 2004, General Statement, 26 April 2004. http://www.reachingcriticalwill.org/legal/npt/prepcom04/uk26.pdf

Non-proliferation: "In the United States, Russia, the UK and France, doctrines based on the presumption of nuclear use have declined and so have the numbers of deployed weapons. Elsewhere we are still a long way from achieving the same trend, and each new nuclear weapon state that emerges takes us one more step away from it. In that sense, it must be obvious that preventing further proliferation is the highest priority." - **Statement by H.E. Ambassador David Broucher, Permanent Representative of the United Kingdom of Great Britain and Northern Ireland to the Conference on Disarmament, 7 September 2004.** http://www.reachingcriticalwill.org/political/cd/speeches04/7SeptUK.pdf

Disarmament: "...we do not accept the report's (of the Governmental Group of Experts on the Relationship between Disarmament and Development) suggestion that little evident progress is being made on nuclear disarmament, nor do we accept that the integrity and effectiveness of the nuclear non-proliferation and disarmament regime is in doubt. The UK has made dramatic reductions in its nuclear weapons. We now have a minimum nuclear deterrent, and we remain fully committed to our disarmament obligations under the Nuclear Non-Proliferation Treaty (NPT). The NPT has the widest membership of any arms control treaty and remains the cornerstone of the nuclear non-proliferation regime.

"We also believe that the report does not give sufficient credit to unilateral, bilateral, and multilateral actions in disarmament and non-proliferation. Such measures have brought and can bring positive results and their value is recognised in the arms control field, including in the Final Document of the 2000 NPT review conference." - **Explanation of vote on draft resolution 59/L.28 in the General Assembly First Committee, 27 October 2004**.
http://www.reachingcriticalwill.org/political/1com/1com04/EOV/L28UK.html

France

Date of first nuclear explosion- 13 February 1960

1. Amount, Location, and Operational Plan of Nuclear Weapons

Weapon System	No. deployed	Range (km)	Yield (Kt)	No. in stockpile
Mirage 2000N/ASMP	45	2,750	300	50
MSBS M4A/B	16	6,000	150	96
MSBS M45	32	6000	100	192
Super Étendard/ ASMP	24	650	300	10
Total				**348**

France's nuclear force consists mainly of its four nuclear-powered ballistic missile submarines, each with a load of 16 missiles with 6 warheads each. France also maintains approximately 60 air-to-surface supersonic missiles (ASMP) carried by fighter/bomber aircraft.
Kristensen, Hans and S. Kile, "World Nuclear Forces," *SIPRI Yearbook 2003: Armaments, Disarmament and International Security*, Oxford University Press: Oxford, 2003.

The Role of Nuclear Weapons in National Security Strategy
Nuclear deterrence remains a central component of French national defense, as outlined in the 1994 White Paper on Defense, Appended report 2003-2008 Military programme, "Arms control, disarmament, and non-proliferation: French policy." http://www.defense.gouv.fr/actualites/dossier/d54/sommaire_ang.html

President Jacques Chirac outlined the role of nuclear weapons in French national security in a speech before L'Institut des Hautes Études de la Défense Nationale, École Militaire, Paris, 8 June 2001. Some excerpts include:

"Nuclear deterrence is first of all a major factor of international stability. It is due to this deterrence that Europe has been preserved for more than fifty years from the ravages it had known in the course of the 20th century. Demanding restraint, calling for reason, the credible nuclear threat commands the peace... Our nuclear forces are not directed against any country, and we have always refused that the nuclear weapon be considered as a battle weapon used in a military strategy... At the very time when considerable arsenals still exist and others are being developed in various parts of the world, this guarantee remains fundamental...What I am affirming before you is that France, while remaining faithful to its concept of non-use, has and will conserve the means of maintaining the credibility of its deterrence in face of all new threats..."

Nuclear Weapon Deployment/Storage Sites
Luxeuil- Mirage 2000 aircraft base
Istres- Mirage 2000 aircraft base
Landivisiau- Super Étendard aircraft
L'Ile Longue: SSBN bases

2. Activities Specifically Undertaken in Accordance with Article VI of NPT

France undertook major reductions and terminations in 1991-1992 and in 1996-1997.

The 1991 and 1992 measures include:

- abandonment of the strategic surface-to-surface S45 missile program, which had been intended to replace the S3D missiles on the Plateau d'Albion;
- early withdrawal of the Pluton short-range surface-to-surface missiles;
- dismantling of the AN52 nuclear bombs carried by Jaguar and Mirage III aircraft;
- reduction in the number of SSBNs in service from 6 to 5 and a longer production timetable for new generation SSBNs;
- a cut in the Hadès short-range surface-to-surface missile program from 120 to 130 units,
- plus the decision to store rather than deploy this weapons system.

The 1996 measures include:

- limiting SSBNs maintained in the operational cycle to 4;
- withdrawing the Mirage IV strategic aircraft from nuclear missions;
- withdrawing from service the surface-to-surface component on the Plateau d'Albion, the closure of this site and the final withdrawal of the Hadès weapon system, followed by the dismantling of its missiles;

France is now the only Nuclear Weapon State to have totally eliminated its formerly deployed surface-to-surface nuclear weapon systems.

Since the end of the Cold War, the total number of delivery vehicles has been cut by over half.

Reducing the nuclear budget:

- the share of the defense budget allocated to nuclear expenditure has been reduced by 58% since 1990
- the defense budget share in 2005 is 20.7% of the defense equipment budget

http://www.mvtpaix.org

The cessation of all nuclear testing and the dismantling of the installations of the Pacific test site:

- following the unilateral moratorium on nuclear tests decided in April 1992 and after a final series of tests, France, on 29 January 1996, announced the cessation of all nuclear testing ;
- the complete dismantling of the testing facilities in the Pacific has been announced as early of 22 February 1996 and completed by the end of July 1998;

France is the only Nuclear Weapon State to have closed down and dismantled its nuclear testing facilities.

3. Location and Capability of Nuclear Facilities

Power Reactors
Operational: 59
Shut down: 11
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 15
Shut down: 11
Decommissioned: 5
Planned: 1
http://www.iaea.or.at/worldatom/rrdb/

Other nuclear facilities
CEA laser-based uranium enrichment research (SILVA)
COGEMA MOX fuel fabrication plant, Cadarache (Bouches-du-Rhône)
MELOX MOX fuel fabrication plant, Marcoule (Gard)
COGEMA/SICN nuclear fuel fabrication plant, Veurey-Voroize (Isère)
FBFC nuclear fuel fabrication plant, Romans-sur-Isère (Drôme)
COGEMA EURODIF enrichment plant, Tricastin (Drôme)
Comurhex uranium conversion plant, Malvési (Aude)

Comurhex uranium conversion plant, Pierrelatte (Drôme)
Cogéma Pierrelatte TU5 conversion facility (Drôme)
UP-800 and UP3, reprocessing facilities (La Hague)
Nuclear weapon research and/or production site (Balduc)
Nuclear weapon research or production site (Limeil)
Megajoule Laser LMJ, (Le Barp)
Xub-critical testing facility (Moronvilliers)
http://www.antenna.nl/wise/uranium/epfr.html

At Marcoule, the production of plutonium has been halted but tritium production continues. The cleanup of the site requires the elimination of the stock of waste produced by the nuclear fuel reprocessing plant. http://www.globalsecurity.org/wmd/world/france/marcoule.htm

4. Fissile Material Holdings

France suspended weapons-grade plutonium production in 1992 (Marcoule) and HEU production in 1996 (Pierrelatte uranium enrichment plant), the first State to do so.

Military Stocks of Fissile Material
- Plutonium: 5 tons
- HEU: 29 tons

http://www.isis-online.org/global_stocks/military_excess_heu.html

Declared Excess- 0

Unirradiated Civil Plutonium- 79.9 tons: (47.9 tons nationally-owned, 32 tons foreign owned)
Irradiated Civil Plutonium- 182 tons
Separated Civil Plutonium- 40-50 tons (estimated 2010)
http://www.isis-online.org/global_stocks/plutonium_watch2004.html

By significantly increasing the fraction of fresh plutonium put into MOX fuel, France will have a large separated plutonium stock well into the future.
http://www.isis-online.org/global_stocks/separated_civil_pu.html

Waste Management
Low-level waste: Since 1992, the Centre de l'Aube Disposal Facility is currently France's site for LLW disposal.

High-level waste: Spent nuclear fuel is kept for one year on site in specially constructed storage pools. Following storage, spent nuclear fuel is transported to the La Hague and Marcoule reprocessing plants and stored in pools for two to three years. The French Waste Management Research Act of December 1991 authorized 15-year studies of three management options for HLW, including separation and/or transmutation, long-term storage, and geologic disposal. One site under consideration for deep geologic disposal in clay is currently being studied. The French are also searching for a granite site to research. http://www.ocrwm.doe.gov/factsheets/doeymp0411.shtml

5. Nuclear Activities

Nuclear Research Centers
BRGM - Bureau de recherches géologiques et minières
CEA
CECAM - Centre Européen de Calcul Atomique et Moléculaire
CENBG - Centre d'études nucléaires de Bordeaux Gradignan
CEPN - Centre d'etude sur l'Evaluation de la Protection dans le domaine Nucleaire

CESEN - Cercle d'étude sur l'énergie nucléaire
CNE - Commission nationale d'évaluation
CNRS - Centre National de la Recherche Scientifique
CRPG - Centre de Recherches Petrographiques et Geochiminiques
EDF Research Division
ESRF - European Synchrotron Radiation Facility
EVARISTE - Etude et Valorisation des Activités de Recherche et d'Innovation Scientifique et Technique pour les Entreprises
GANIL - Grand Accélérateur National d'Ions Lourds
GdR FORPRO - Groupement de Recherches FORmations géologiques PROfondes
Grenoble Hybrid Reactors Group
ILL - Institute Laue-Langevin
INERIS - Institut National de l'Environnement Industriel et des Risques
L'Institut de Physique Nucléaire d'Orsay
LLB - Laboratoire Léon Brillouin
LURE - Laboratoire Français de rayonnement synchrotron
http://www.radwaste.org/research.htm

Nuclear Cooperation
Vietnam: Agreement (26 May 2004) to cooperate on the construction of a nuclear power plant by 2020
US: Agreement (24 August 2004) to provide DOE access to the PHENIX fast spectrum test reactor.
Bulgaria: Agreement on nuclear power and safety
Pakistan: Cooperation in nuclear technology for agriculture, medicine, the environment, industry, and radiation protection
Ukraine: Cooperation in nuclear fuel cycle and waste treatment techniques
http://www.world-nuclear.org/info/printable_information_papers/inf38print.htm

6. International Non-proliferation Efforts

France is also a participant in the G8 Global Partnership against the spread of weapons and materials of mass destruction, launched in Kananaskis, Canada 2002.

Treaties Signed and Ratified
Antarctic Treaty, 16 September 1960
APM Convention, 23 July 1998
Biological and Toxin Weapons Convention, 27 September 1984
Certain Conventional Weapons Convention, 4 March 1988
Comprehensive Nuclear Test-Ban Treaty, 6 April 1998
Chemical Weapons Convention, 2 March 1995
Nuclear Non-Proliferation Treaty, 3 August 1992
Outer Space Treaty, 5 August 1970

France ratified the IAEA Additional Protocol on 10 April 2004.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Nuclear Suppliers Group
Proliferation Security Initiative
Wassenaar Arrangement
Zangger Committee

7. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Additional Protocol: "...France calls on all of the States parties to the NPT that have not yet done so, and in particular those with nuclear activities, to sign and implement as soon as possible a comprehensive safeguards agreement and an additional protocol. France...proposes that the addtional protocol be made a condition for supply of the most sensitive nuclear goods." - **Statement by H.E. François Rivasseau to the Preparatory Committee of the 2005 Review Conference of the NPT, 26 April 2004**. http://www.reachingcriticalwill.org/legal/npt/prepcom04/france27.pdf

Nuclear energy: "France...is convinced of the importance of nuclear power within a diversified energy policy and as an essential contribution to sustainable development... It also attaches great importance to ensuring that countries wishing to pursue their development are able to enjoy the benefits of nuclear technologies..." - **Statement by H.E. François Rivasseau to the Preparatory Committee of the 2005 Review Conference of the NPT, 26 April 2004**.
http://www.reachingcriticalwill.org/legal/npt/prepcom04/france27.pdf

Disarmament: "The logic of strict sufficiency has consistently dictated the format of its deterrent force, a key pillar of France's security. That is not to say that it has interrupted its disarmament effort. For instance, dismantling of the Pierrelatte and Marcoule facilities for producing fissile materials for nuclear weapons continues to this day... Finally, pursuing to Article VI of the NPT, France is working for general and complete disarmament. I will confine myself to reminding you that France is active in all areas of disarmament." - **Statement by H.E. François Rivasseau to the Preparatory Committee of the 2005 Review Conference of the NPT, 29 April 2004.**
ttp://www.reachingcriticalwill.org/legal/npt/prepcom04/franceCL1.pdf

China

Date of first nuclear explosion- 16 October 1964

1. Amount, Location and Operational Plan of Nuclear Weapons

Strategic Weapons

Missile	Range	Description	Number (warheads)
Dong Feng (DF)-3A	2,800 km	Slated for retirement	40
DF-4	4,750 km	Two-stage, liquid-fueled long-range missile launched from transporter-rector-launcher (TEL)	20
DF-5/5A	13,000+ km	Three-stage, liquid-fueled; DF-5s replaced by DF-5As	20
DF-21A	1,800 km	Two-stage, solid-propellant; some converted to conventionally-armed missiles	48
DF-31	8,000 km	Two-stage, solid-fuel; can carry 3 nuclear warheads; predicted deployment 2005	?
DF-31A	12,000 km	Deployment predicted between 2006-2010.	0
Julang-1	3,000 km	Type-092, *Xia* class, can carry 12 solid-fuel, two-stage JL-1 SLBMs	60
Julang-2	8000 km	Type-094, *Xia* class, equipped with JL-2 SLBM; expected deployment 2010	0

Annual Report on the Military Power of the People's Republic of China, Department of Defense, 2004.
http://www.defenselink.mil/pubs/d20040528PRC.pdf
http://www.nrdc.org/nuclear/nudb/datab17.asp

Tactical Weapons

The intended ambiguity of China's nuclear forces extends to the opacity surrounding its non-strategic arsenal.

The Natural Resources Defense Council estimates 150 tactical weapons in the Chinese arsenal.
http://www.nrdc.org/nuclear/nudb/datab17.asp

Chinese Defence Today claims that the DF-11 and DF-15, both single-stage, solid-fuel missiles launched from TELs, "are modern and capable compared to similar systems developed by US and Russia (and)...indicate China's capability to launch a high-tech, theatre-operation-style attack to any target in the region." http://www.sinodefence.com/nuclear/default.asp

Nuclear weapons facilities

Name/Location of Facility	Type/Status
Northwest Nuclear Technology Institute, in the Scientific Research District outside Malan, Xinjiang	Archive on nuclear explosions, warfare, and weapons research and design; associated with testing at Lop Nur
Jinquan Atomic Energy Complex (plant 404), Subei, Gansu	Fabrication of fissile materials into bomb cores, and final weapons assembly
Northwest Institute of Nuclear Technology, Xi'an, Shaanxi	Diagnostic support for nuclear test program
Lop Nur Nuclear Weapons Test Base, Xinjiang	Nuclear weapons test site and possible nuclear weapons stockpile
Chinese Academy of Engineering Physics (CAEP), Mianyang, Sichuan	Nuclear weapons research, design, and technology complex; called the "Los Alamos of China," 11 institutes, 8 located in Mianyang
Institute 904 of CAEP, outside Mianyang	Ordinance engineering lab for non-nuclear components of nuclear weapons; "the Chinese Sandia"
Institute of Applied Physics and Computational Mathematics, Beijing	Conducts research on nuclear warhead design computations for CAEP
Shanghai Institute of Nuclear Research, Shanghai Zhejiang	Engaged in tomography, tests solid missile propellants, explosives, and detonation packages for nuclear weapons
Fudan University, Shanghai, Xhejiang	Engaged in tomography, tests solid missile propellants, explosives, and detonation packages for nuclear weapons
Harbin, Heilongjiang	Possible warhead assembly and production site
Plant 821, Guangyuan, Sichuan	Nuclear weapon assembly facility

Carnegie Endowment for International Peace, Tracking Nuclear Proliferation, Washington, DC, 1998. China: Maps and Charts, 1998.

The Role of Nuclear Weapons in National Security Strategy

China focuses its security strategy on three inter-related elements:

- promoting national economic development
- promoting domestic unity
- maintaining state sovereignty and territorial integrity

China views its nuclear arsenal- the smallest of the 5 recognized Nuclear Weapon States- as an important element in deterrence, although it repeatedly voices support for global elimination of nuclear weapons.

The December, 2003 White Paper on National Defense states: "China consistently upholds the policy of no first use of nuclear weapons, and adopts an extremely restrained attitude toward the development of nuclear weapons. China has never participated in any nuclear arms race and never deployed nuclear weapons abroad. China's limited nuclear counterattack ability is entirely for deterrence against possible nuclear attacks by other countries."

2. Activities specifically undertaken in accordance with Article VI of the NPT

Systems Retired

- DF-3A missiles gradually retired
- DF-41 (canceled)

Norris, Robert S. and Hans M. Kristensen, "Chinese nuclear forces, 2003" NRDC Nuclear Notebook, http://www.thebulletin.org/article_nn.php?art_ofn=nd03norris

3. Location and Capability of Nuclear Facilities

Power reactors
Operational: 9
Shut down: 0
Under Construction: 2
Planned: 40
http://www.iaea.or.at/programmes/a2/

Research reactors
Operational: 14
Shut down: 2
Under Construction: 2
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Xinhua News Agency - April 6, 2005, http://www.canelect.ca/english/article.html?SMContentIndex=1&SMContentSet=0

In May 2004, the China National Nuclear Corporation applied to build eight large new reactors in the Guangdong and Zhejiang provinces.
http://www.world-nuclear.org/info/inf63.htm

China reportedly intends to reprocess a small amount of light water reactor spent fuel and recycle separated plutonium into its civil reactors. It also plans to establish a 100 ton per year reprocessing plant and associated MOX fuel fabrication plant, but these plans have been delayed.
http://www.isis-online.org/global_stocks/separated_civil_pu.html

Uranium Mines (5 operational)
Fuzhou- 300 tons capacity per year
Chongyi- 120 tons capacity per year
Yining- 200 tons capacity per year
Lantian- 100 tons capacity per year
Benxi- 120 tons capacity per year
Hengyang (on stand-by)- 500-100 tons capacity per year

Uranium Enrichment Facilities
Heping Uranium Enrichment Plant (Heping, Sichuan)
Lanzhou Nuclear Fuel Complex (Lanzhou, Gansu)
Lanzhou Nuclear Fuel Complex-2 (Lanzhou, Gansu)
China Institute of Atomic Energy (Tuoli, near Beijing)
Centrifuge enrichment plant (Chengdu, Sichuan)

Uranium Processing Facilities
Nuclear Fuel Component Plant/202 (Baotou, Nei Mongolia province)
Nuclear Fuel Component Plant/ 812 (Yibin, Sichuan)
Jiuquan Atomic Energy Complex/Plant 404 (Subei, Gansu)

Plutonium Production Reactors
Plant 821 (Guangyuan, Sichuan)
Jiuquan Atomic Energy Complex/Plant 404 (Subei, Gansu)

Plutonium Processing Facilities
Jiuluan Atomic Energy Complex/Plant 404 (Subei, Gansu)
Plant 921 (Guangyuan, Sichuan)
Nuclear Fuel Component Plant/Plant 812 (Yibin, Sichuan)
Lanzhou Nuclear Fuel Complex (Lanzhou, Gansu

4. Fissile Material Holdings

Military Stocks of Fissile Materials
Plutonium: 4.8 tons
http://www.isis-online.org/global_stocks/plutonium_watch2004.html

Weapons-grade Uranium equivalent: 20 tons
http://www.isis-online.org/global_stocks/military_excess_heu.html

Declared Excess
Plutonium: 0
HEU- 0

Unirradiated Civil Plutonium: 4.3 tons (in country)
http://www.isis-online.org/global_stocks/civil_pu.html

Civil HEU: approximately 1 ton
http://www.isis-online.org/global_stocks/civil_inventories_heu.html

Cumulative Plutonium Discharges from Civilian Power Reactors: 4.3 tons
http://www.isis-online.org/global_stocks/civil_pu.html#table7

Estimated Amounts of Plutonium Contained in Spent Civil Reactor Fuel- 0 tons
The World Nuclear Association predicts that the annual spent fuel arisings will amount to approximately 600 tons in 2010 and 1000 tons by 2020. http://www.world-nuclear.org/info/inf63.htm

Spent fuels are temporarily stored at on-site pools for at least 5 years before transported to spent fuel interim storage sites for future reprocessing.
Li, Zhongliang, "Radioactive Waste and Spent Fuel Management in China," presentation given at the "GLOBAL 2001: Back End of the Fuel Cycle" conference, September 10-13, 2001, Paris, France.
http://www.cea.fr/conferences/global2001/Opening%20et%20Closing/Opening%20session%20LI%20Zhongliang.pdf

Radioactive Waste Management
The Commission of Science, Technology and Industry for National Defence is responsible for all facilities associated with the nuclear fuel cycle and radioactive waste management.

Low- and intermediate level waste: It is reported that China will construct 4-5 repositories for low-level waste produced from its nuclear industry, the decommissioning of nuclear facilities and from nuclear power plant operation. The wastes will be delivered to these facilities after a five-year interim storage period.
http://www.ocrwm.doe.gov/factsheets/doeymp0409.shtml

China employs three techniques for management of low- and intermediate-level nuclear waste: hydraulic fracture (commenced in 1993), bulk pouring cementation (mostly completed) and near-surface disposal near sites with "comparatively concentrated" nuclear installations.
Li, Zhongliang, "Radioactive Waste and Spent Fuel Management in China," presentation given at the "GLOBAL 2001: Back End of the Fuel Cycle" conference, September 10-13, 2001, Paris, France.
http://www.cea.fr/conferences/global2001/Opening%20et%20Closing/Opening%20session%20LI%20Zhongliang.pdf

High-level waste: China plans to create a vitrification workshop; in the meanwhile, China carries out chemical-separation experiments to downblend HLW and continues with its studies on HLW deep geological disposal. China has completed all feasibility studies and will most likely construct it in the northwest region of China, where two wells up to 700 m were drilled.
Li, Zhongliang, "Radioactive Waste and Spent Fuel Management in China," presentation given at the "GLOBAL 2001: Back End of the Fuel Cycle" conference, September 10-13, 2001, Paris, France.

http://www.cea.fr/conferences/global2001/Opening%20et%20Closing/Opening%20session%20LI%20Zhongliang.pdf
http://www.cea.fr/conferences/global2001/Opening%20et%20Closing/Opening%20session%20LI%20Zhongliang.pdf

5. Nuclear Activities

Research Centers

China Nuclear Power Information Network
CIAE - China Inst of Atomic Energy
IHIP - Institute of Heavy Ion Phisics
INET - Inst of Nuclear Energy Technology
Lanzhou University Nuclear Science & Technology Research Center
Peking University Nuclear Science & Technology Research Center
SNERDI - Shanghai Nuclear Engineering Research & Design Institute
SWIP - Southwest Inst of Physics
http://www.radwaste.org/research.htm

Nuclear fusion research
Institute of Plasma Physics, Chinese Academy of Science
Southwestern Institute of Physics, Center of Fusion Science
Department of Modern Physics, University of Science and Technology of China
http://www.iaea.org/inis/ws/research_institutes/china.html

Nuclear Cooperation

Algeria: Provision of 15 MW research reactor (1983); research facilities (1996 and 1997)
Argentina: Nuclear fuel cycle research and development (1985-present)
Brazil: Provision of nuclear materials and equipment (1984)
Canada: Uranium agreements (1994-2024)
Chile: Geology and mining; uranium reprocessing (1989-?)
Finland: Comprehensive agreement (1987-?)
France: Cooperation, safety, scientific and technical agreements (1979-present)
Germany: Cooperation, safety, scientific and technical agreements (1984-present)
Indonesia: Cooperation, technical, assistance and training agreement (1985)
Iran: Provision of nuclear technology, including cooperation, technical, scientific agreements (1985-?)
Italy: Cooperation, safety, scientific and technical agreements (1980-1992)
Japan: Cooperation, safety, and radioactive waste management agreements (1989, 1994)
Pakistan: Nuclear cooperation agreement, including the supply of a 300 MW power reactor (1991)
Romania: Cooperation agreement (1984)
Russia: Cooperation agreement (1996); uranium enrichment plant construction cooperation (1994); Agreement on supply of two 1,000 MW power reactors (1992); Economic and Scientific Cooperation agreement, including two nuclear power plants (1990-2000)
South Korea: Agreement for cooperation in establishing manufacturing facilities in China for nuclear components and equipment, and on the fabrication of sets of major components for 30-40 reactors (1995); Protocol on monitoring radioactivity and in alerting one another of any nuclear accidents; (1994); Bilateral nuclear energy agreement that will allow South Korean companies to take part in the construction of nuclear power plants in China (1994); Information provision agreement (1991)
Spain: Comprehensive agreement (1985)
Sweden: Industrial and scientific cooperation agreement (1978)
Switzerland: Cooperation agreement (1986)
Ukraine: Cooperation in uranium ore prospecting and mining, joint research and development of water-cooled reactors, and cooperation in the construction and safety measures of nuclear power reactors (1996)
UK: Comprehensive agreement (1985)

US: Nuclear reactor technology and nuclear application technologies; Nuclear emergency management and safety; Export controls on nuclear materials, equipment, technology, dual-use items; International nuclear safeguards and physical protection; Radioactive source security (2004)

http://www.nti.org/db/china/nca.htm

6. International Non-Proliferation Efforts

"China has put in place a comprehensive legal system for non-proliferation export control, covering the exports of nuclear, biological, chemical, missile and other sensitive items and technologies. It has adopted the international export control measures, including export registration system, end-user and end-use certification system, licensing system, list control method and "catch-all" principle, and has stipulated corresponding penalties for breaches of these laws and regulations. China's non-proliferation export control measures are basically in conformity with the current international practice." China Government White Paper, December 2004. http://www.china.org.cn/e-white/20041227/X.htm

Treaties Signed and Ratified, Date of deposit
Antarctic Treaty, 8 June 1983
Biological Weapons Convention, 15 November 1984
Certain Conventional Weapons Convention, 7 April 1982
Comprehensive Nuclear Test-Ban Treaty, 24 September 1996
Chemical Weapons Convention, 25 April 1997
Nuclear Non-Proliferation Treaty, 17 March 1992
Outer Space Treaty, 12 January 1984
Sea Bed Treaty, 28 February 1991
Treaty of Rarotonga Protocol, 21 October 1988
Treaty of Tlateloco Protocol, 12 June 1974

On 28 March 2002, China ratified the IAEA Additional Protocol, the first NWS to do so.

Multilateral Groups
Conference on Disarmament
Nuclear Suppliers Group
Zangger Committee

In February 2004, China and the Missile Technology Control Regime held their first round of dialogue, four months after Foreign Minister Li Zhaoxing sent a letter to the MTCR Chair, declaring China's willingness to join.

7. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Security Strategy: "In this century, the biggest security threat to the world is no longer the strategic confrontation and conflict between big powers as we saw in the Cold War. Non-traditional threats such as trans-boundary crimes, terrorist acts and spread of WMDs are taking over traditional ones and becoming great challenges to the world. To effectively cope with these challenges in pursuit of peace and security for all requires a new security concept of mutual trust, mutual benefit, equality and cooperation. Nuclear weapons do not solve our problems." - **Mr. Liu Jieyi, Director General of Arms Control and Disarmament Department, Foreign Ministry of China, on Nuclear Disarmament and Security Assurances, 6 April 2004.**
http://www.fmprc.gov.cn/eng/wjb/zzjg/jks/jkxw/t82570.htm

Thirteen Steps: "The 2000 NPT Review Conference agreed on 13-step nuclear disarmament measures.

Although regrettable changes took place in some aspects, we should continue to adhere to the spirit and principles of the steps. It is necessary for the third session of the preparatory committee to reaffirm those measures which are still valid. New proposals reflecting changes of the situation should be explored and the consensus should be sought." - **Mr. Liu Jieyi, Director General of Arms Control and Disarmament Department, Foreign Ministry of China, on Nuclear Disarmament and Security Assurances, 6 April 2004.** http://www.fmprc.gov.cn/eng/wjb/zzjg/jks/jkxw/t82570.htm

Security Assurances: "Security assurances are not one way offering. The non-nuclear-weapon states agreed to give up the nuclear weapon option when they joined the NPT. This constitutes their contribution to nuclear non-proliferation, disarmament and to the maintenance of world peace and security. It is fully legitimate and reasonable for them to obtain assurances by nuclear-weapon states against nuclear threats and have such assurances in the form of a legal instrument." - **Mr. Liu Jieyi, Director General of Arms Control and Disarmament Department, Foreign Ministry of China, on Nuclear Disarmament and Security Assurances, 6 April 2004.**
http://www.fmprc.gov.cn/eng/wjb/zzjg/jks/jkxw/t82570.htm

Nuclear Disarmament: "Countries with the largest and most advanced nuclear arsenals should further substantially cut down their nuclear arsenals in a verifiable and irreversible manner, thus creating favorable conditions for achieving complete nuclear disarmament." **Statement to the 59th session of the General Assembly First Committee in China's explanation of vote on resolutions related to nuclear disarmament, 28 October 2004.**
http://www.reachingcriticalwill.org/political/1com/1com04/EOV/Chinanuclear.pdf

Universality: "A comprehensive rather than selective implementation of the Final Document of 2000 NPT Review Conference is not only desirable but also necessary. We call upon all the States that have not joined NPT to accede to the Treaty without further delay, so as to achieve its universality at an early date."- **Ambassador Hu Xiaodi, addressing the CD, 15 August 2002.**

NATO Nuclear Policy

Five Non-Nuclear Weapon States host US nuclear weapons on their soil under the North American Treaty Organization (NATO) Strategic Concept: Belgium, Germany, the Netherlands, Italy, Turkey. In addition, the UK, a Nuclear Weapon State, also hosts US nuclear weapons at the Royal Air Force Base Lakenheath under NATO policy.

The presence of these arsenals are neither confirmed nor denied by either the US or the host country. However, a new study from Hans Kristensen of the Natural Resources Defense Council on "US Nuclear Weapons in Europe" finds that 480 US nuclear weapons are deployed on European soil. This level has remained unchanged since the Clinton administration's Presidential Decision Directive/NSC-74, dated November 2000.

Nuclear doctrine

The 1999 Strategic Concept, a reaffirmation of the 1991 Strategic Concept, confirms NATO policy to "maintain for the foreseeable future an appropriate mix of nuclear and conventional forces based in Europe, kept up to date where necessary, at the minimum sufficient level."(1)

In 2001, NATO Nuclear Planning Group (NPG) met to discuss and review the 1991 Strategic Concept, determining that, "Nuclear forces are a credible and effective element of the alliance's strategy of preventing war; they are maintaining the minimum level sufficient to preserve peace and stability, under conditions that continue to meet the highest standards of safety and security."(2) While the final communiqué notes "NATO's drastically reduced nuclear force posture"- in reference to the reductions from cold war-era 4,000 nuclear weapons in Europe- it does not specify where the reductions took place or where the weapons went.

Operational status

While NATO insists that its nuclear forces no longer target any country, independent analysts demonstrate that the political-military alliance "still maintains detailed nuclear strike plans for potential strikes against specific targets in specific countries."(3)

Reductions

The presence of US nuclear weapons in Greece had historically been a contentious issue, even within NATO.(4) Since 2001, there has been wide speculation that approximately 20 weapons that had been stored at the Greek Araxos air base were being removed. Kristensen reports that the nuclear forces at Araxos were effectively stood down on June 20, 2001. The weapons are believed to either have been taken to another base in Europe, or repatriated to the United States. The policy of "neither confirming nor denying" prevents confirmation on this.

Legality under the NPT

Article II of the NPT forbids NWS "to transfer to any recipient whatsoever nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices directly, or indirectly." Article III forbids NNWS "to receive the transfer from any transferor whatsoever of nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices directly, or indirectly." While NATO maintains the legality of their policy insofar as the weapons remain under US control, many critics argue that NATO's nuclear sharing policy, and the peacetime planning for the use of weapons by NNWS is in direct violation of Articles II and III.

(1) http://www.nato.int/docu/handbook/2001/hb0203.htm

(2) NATO Press Release M-DPC/NPG-1(2001)87, "Final Communiqué: Ministerial Meeting of the Defence Planning Committee and the Nuclear Planning Group," June 7, 2001, paragraph 5, as cited in Kristensen, Hans, "US Nuclear Weapons in Europe," *Natural Resources Defense Council*, 2005.

(3) Kristensen, p.6

(4) See Kristensen, pages 25-26

Belgium

1. Location, amount and details of US Nuclear Weapons Deployment/storage

Belgium hosts the NATO headquarters, near Brussels, where decisions about NATO nuclear strategy are taken. At SHAPE (Supreme Headquarters of the Allied Powers in Europe, the NATO military headquarters), located in Mons in south of Belgium, NATO nuclear strategy is translated into military plans.

Location	No. of Vaults	Maximum Capacity	No. of deployed weapons
Kleine Brogel	11	44	20
TOTAL			**20**

http://www.nrdc.org/nuclear/euro/euro.pdf

On March 22, 2005, the Commission of Foreign Affairs and Defense of the Belgian Senate voted a resolution requesting the Belgian government to broach the possibility of removal of American nuclear weapons from Europe within NATO. Further action by the Belgian Senate and the first chamber of Parliament is expected shortly thereafter.

2. Location and capability of nuclear facilities

In March, 2002, the Council of Ministers decided to phase out the commercial production of nuclear power from Belgium. All open reactors will be closed when they reach the age of 40 years. The first reactor will be closed in 2014, and the process will be complete by 2024.

Power Reactors
Operational: 7
Shut down: 1
Decommissioned: 0
Under construction: 0
Planned: 0
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 4
Shut down: 2
Decommissioned: 0
Under Construction: 0
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Uranium Enrichment and Reprocessing
There are no uranium enrichment facilities in Belgium. Enriched uranium is imported by Synatom, which retains ownership of it through its use by Electrabel to final disposal.

Fuel fabrication is at two plants at Mol-Dessel: a 400 t/yr uranium fuel plant operated by FBFC International (Framatome-ANP), and Belgonucleaire's 35 t/yr MOX plant.

The Eurochemic reprocessing plant at Dessel was built as a joint facility with 12 other OECD states. It operated 1966 to 1974 and after 12 years idle it is now being dismantled by Belgoprocess.
http://www.world-nuclear.org/info/inf94.htm

3. Fissile Material Holdings

Unirradiated Civil Plutonium
- 3.4 tons (in country)
- .4 tons (in other countries)

http://www.isis-online.org/global_stocks/separated_civil_pu.html

Separated Civil Plutonium (in and out of country) - intended for civil MOX
end of 2002: 1.8 tons
estimated by 2010: 0
http://www.isis-online.org/global_stocks/separated_civil_pu.html

Radioactive Waste Management
The national agency for radioactive waste and fissile materials management is responsible for the management of all radioactive materials in the country, including transport, treatment, conditioning, storage and disposal. Its main facility is at the Mol-Dessel site, run by its subsidiary Belgoprocess.

Low-level waste: There are proposals for low-level waste repositories at Mol and Dessel.

Intermediate- and high-level waste: A number of shipments of vitrified high-level waste from reprocessed Belgian fuel have taken place from La Hague in France. The wastes are stored at Dessel.

Research on deep geological disposal of intermediate and high-level wastes is underway and focused on the clays at Mol. In 1980-84 the Hades underground research laboratory was constructed 225 meters deep in the Boom clay. http://www.world-nuclear.org/info/inf94.htm

4. Nuclear Activities

Research Centers
AMOLF/FOM: Inst for Atomic & Molecular Physics
ECN: Energieonderzoek Centrum Nederland
FELIX
FOM: Fundamenteel Onderzoek der Materie
Interfacultair Reactor Instituut
National Inst for Nuclear Physics
NWO: Nederlandse Organisatie voor Wetenschappelijk Onderzoek / Organization for Scientific Research
TNO: Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek
http://www.radwaste.org/research.htm

Nuclear Cooperation
US: Belgium supplied the US's military program with uranium from the former Belgian Congo. In 1962, Belgium was rewarded with an American research reactor at Mol, the first pressurized water reactr built in Europe. http://www.world-nuclear.org/info/inf94.htm

Contact Expert Group: The CEG was established in September 1995 to enhance safety of waste management in Russia and to promote international cooperative efforts aimed at resolving radioactive waste management issues. Members include Belgium, Finland, France, Germany, Norway, Russia, Sweden, UK, USA, European Union, as well as the International Institute for Applied Systems Analysis (IIASA), and the International Science and Technology Centre (ISTC), with Japan and the Nordic Environment Finance Corp as observers. http://www.world-nuclear.org/info/inf38.htm

Canada: MOU signed November 2002 on data and information exchange, scientific cooperation, research and development. http://www.hc-sc.gc.ca/hecs-sesc/hml/belgium.htm

Russia: MOU signed April 2001 on delivery of nuclear fuel to Belgian nuclear power plants. http://www.bellona.no/en/international/russia/nuke_industry/co-operation/channel15203n25s50_.html

Nuclear bilateral agreements:

Luxembourg (1970)	Romania (1974)	USA-USNRC (1978)
Korea (1981)	France (1981 and 1984)	Egypt (1984)

The Netherlands (1984 and 1990) China (1985)

Scientific, industrial and technological agreements:

France (1950) USA (1950, 1951) Kuwait (1974)
DR Germany (1974) Poland (1974) Bulgaria (1975)
Czechoslovakia (1975) Hungary (1975 and 1986) Romania (1976)
Cuba (1976) Egypt (1979) China (1979)
Algeria (1982 and 1983) Tunisia (1983) Germany (1980)
United Arab Republics (1984) USSR (1984) Mexico (1984)
Brazil (1985) Kenya (1985) Venezuela (1986)
India (1990)

http://www.nea.fr/html/general/profiles/belgium-annex.html

5. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
Antarctic Treaty, 23 July 1960
APM Convention, 4 September 1998
Biological Weapons Convention, 15 March 1979
Certain Conventional Weapons Convention, 7 February 1995
Comprehensive Nuclear Test-Ban Treaty, 29 June 1999
Nuclear Non-Proliferation Treaty, 2 May 1975
Outer Space Treaty, 31 March 1973

Belgium ratified the IAEA Additional Protocol on 30 April 2004.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Nuclear Suppliers Group
Wassenaar Arrangement
Zangger Committee

6. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Proliferation:"The proliferation of weapons of mass destruction poses a serious threat to world security. The regime of non-proliferation is jeopardized. North Korea must regain its place within this regime without delay. The Islamic Republic of Iran is located in a region full of tension and its security concerns are legitimate... the Iranian Authorities must cooperate entirely with the IAEA and cease all activities linked to the enrichment of uranium." - **Statement to the General Assembly by H.E. Mr. Karel de Gucht, Minister of Foreign Affairs, September 14, 2004.**
http://www.un.org/webcast/ga/59/statements/beleng040924.pdf

Nuclear Disarmament: "We are firmly convinced that nuclear disarmament can only be realized through a gradual process. At the 6th Review Conference of the Non-Proliferation Treaty, the states parties agreed on a series of practical measures to this effect. The international community should concentrate on their implementation." - **Statement to the 57th session of the UN General Assembly First Committee on Disarmament and International Security by Belgium on behalf of Belgium, Netherlands, Luxembourg, in explanation of vote on draft resolution 57/L.53, Follow-up to the advisory opinion of the International Court of Justice on the Legality of the Threat or Use of Nuclear Weapons, October 21, 2002.**

http://www.reachingcriticalwill.org/political/1com/1com02/res/EOV/belg_EOVL53.html

Universalization: "I formulate the hope that the universalization of the NPT will continue. Four States remain outside of the Treaty. It is important that they are present during the meetings of the non-proliferation regime," -**Statement by H.E. M. Jean De Ruyt, Director General for Political Affairs, Special Envoy of the Government of Belgium to the Sixth Review Conference of the NPT, New York, 25 April 2000**. http://www.un.int/belgium/NPTENG.html

Germany

1. Location, Amount and Details of U.S. Nuclear Weapons Deployment/storage

Germany houses the highest number of US nuclear weapons under the NATO nuclear sharing policy.

Nuclear Weapons Storage Sites

Location	No. of Vaults	Maximum Capacity	No. of deployed weapons
Büchel Air Base	11	44	20
Nöervenich Air Base	11	44	0
Ramstein Air Base	55	220	130
TOTAL			**150**

The Memmingen Air Base, which also housed 11 vaults with a maximum capacity of 44 was closed in 2003. The weapons stored at Memmingen were moved to the Nöervenich Air Base.

The Brüggen Air Base, with 10 vaults with a maximum capacity of 40 wepaons, was closed on 12 June 1996.

http://www.nrdc.org/nuclear/euro/euro.pdf

2. Location and Capability of Nuclear Facilities

Power Reactors
Operational: 18
Shut down: 18
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 13
Shut down: 11
Decommissioned: 22
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

In June, 2000, the German government officially announced its intention to phase out the use of nuclear energy, the first leading economic power to do so. Nuclear power plants will be shut down after a lifespan of 32 years, fulfilling a pledge by the Social Democrat-Green Party coalition government formed in 1998.

Thirteen German reactors are licensed to use Mixed Oxide (MOX) fuel, using plutonium recycled from spent fuel. A MOX plant at Hanau in Hesse has never been allowed to operate, so all MOX fuel is imported. http://www.uic.com.au/nip46.htm

Uranium Enrichment
Urenco operates the only uranium enrichment plant at Gronau. On 14 February 2005, the Northrhine-Westphalia State Ministry of Energy (MVEL) issued a license for to increase capacity of Urenco's Gronau enrichment plant, including the construction of a second enrichment plant next to the existing one. http://www.antenna.nl/wise/uranium/epeur.html

There is also a uranium fuel fabrication plant at Lingen, operated by Siemens AG.

Uranium Mines
From 1946 to 1990, some 220,000 tons of uranium was mined in the former East Germany, in Saxony and East Thuringia, with substantial environmental damage. Much of this was used in Soviet weapons programs, and for fuel in Eastern Europe.

All uranium is now imported from Canada, Australia, Russia and elsewhere, a total of 3,800 tons per year.

All mines have been decommissioned.
http://www.uic.com.au/nip46.htm

3. Fissile Material Holdings

Unirradiated Civil Plutonium
In country: 11.1 tons
In other countries: 14.5 tons
Total: 25.6 tons

Separated Civil Plutonium
end 2002: 47.9 tons
2010 (projected): 23-34 tons
2015 (projected): 8-25 tons
2020 (projected): 0-16 tons

http://www.isis-online.org/global_stocks/separated_civil_pu.html

Radioactive waste disposal
After 2005, all radioactive waste must be sent for direct disposal, halting all reprocessing (although firm contracts totalling US$ 7.3 billion for reprocessing are in place with BNFL and Cogema). Spent fuel will be stored temporarily at off-site surface facilities in Ahaus and Gorleben; at the moment interim storage remains on site.

Low-level waste: Facility in Konrad will be operational in 2010, expected to take 95% of the waste volume. In the meantime LLW is stored in nearly 50 locations, including two off-site power plant waste storage facilities, collecting depots for medicine, industry and universities, as well as at its larger research centers. http://www.ocrwm.doe.gov/factsheets/doeymp0412.shtml

Intermediate-level waste: Stored at Ahaus facility.

High-level waste: The salt dome at Gorleben, near an existing pilot conditioning plant, is being studied as a possible site for geological disposal of high-level wastes. The site could be available as a final repository in 2025.

Separated high-level wastes from reprocessing are expected to be returned to Germany by 2022 and stored. A total of 166 large casks of glass canisters will be involved, 39 of these are already in storage at Gorleben. A further 300+ casks with canisters of compacted wastes from reprocessing could immediately go to a final repository, the canisters possibly in to boreholes.
http://www.uic.com.au/nip46.htm

4. Nuclear Activities

Research Centers
AKR: Ausbildungskernreaktor
BESSY: Berliner Elektronenspeicherring-Gesellschaft fur Synchrotronstrahlung
DESY: Deutsches Elektronen Synchrotron
DFG: Deutsche Forschungsgemeinschaft
DFN: Deutsches Forschungsnetz / German Research Network
FIZ: Fachinformationszentrum Karlsruhe
Fraunhofer Gesellschaft
Forschungszentrum Rossendorf
FZJ: Forschungszentrum Jülich
FZK: Forschungszentrum Karlsruhe
IKET: Institut für Kern- und Energietechnik
IRS: Institut für Reaktorsicherheit
PSF: Projekt Nukleare Sicherheitsforschung

GSF: Forschungszentrum für Umwelt und Gesundheit
GSI: Gesellschaft für Schwerionenforschung
HASYLAB: Hamburger Synchrotronstrahlungslabor
HMI: Hahn-Meitner-Institut
Institut für Kernphysik
ISTec: Institut für Sicherheitstechnologie
Max-Planck-Gesellschaft
Nuklearmedizin: Stiftung für Wissenschaft und Forschung
Oeko Institut
Otto Hug Strahleninstitut
http://www.radwaste.org/research.htm

Nuclear Cooperation

In 2002, the coalition between the Social Democrats and the Greens agreed to review all contracts with other states that support nuclear energy, though this agreement is not legally binding and non-governmental companies continue to work internationally.

Brazil: A 1970s era agreement to construct eight nuclear power plants was converted into an agreement on renewable energy, energy efficiency and reduction of energy consumption and emissions in 2004.

Russia: In response to a request by the Russian Ministry of Atomic Energy (Minatom), in June 2001 the German Federal Ministry for Economy and Technology (BMWi) and Minatom agreed to enter into an R&D cooperation regarding radioactive waste disposal. In this context a first joint R&D project dealing with "Site Investigation Requirements for a HLW Repository in Hard Rock Formations" was launched in January 2002. http://www.eurosafe-forum.org/ipsn/pdf/euro2_3_10_russian_german_approach.pdf

5. International Non-proliferation Efforts

Germany is also a participant in the G8 Global Partnership against the spread of weapons and materials of mass destruction, launched in Kananaskis, Canada 2002.

Treaties Signed and Ratified, date of deposit
Antarctic Treaty, 5 February 1979
APM Convention, 23 July 1998
Biological Weapons Convention, 23 July 1998
Certain Conventional Weapons Convention, 25 November 1992
Comprehensive Nuclear Test-Ban Treaty, 20 August 1998
Chemical Weapons Convention, 12 August 1994
Nuclear Non-Proliferation Treaty, 2 May 1975
Outer Space Treaty, 10 February 1971
Sea-Bed Treaty, 18 November 1975

Germany ratified the IAEA Additional Protocol 30 April 2004.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Nuclear Suppliers Group
Proliferation Security Initiative
Wassenaar Arrangement
Zangger Committee

6. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Nuclear disarmament and non-proliferation: "...the firm relationship...was established by the treaty between non-proliferation and disarmament, and vice versa. These two goals can only effectively be pursued jointly and not at each others expense. It is particularly important to recall this in view of rising concerns not only regarding continuing proliferation and non-compliance with the non-proliferation obligations but also regarding the slow process in the field of nuclear disarmament and indications of a 'renassaince' of nuclear weapons." - **Statement by Ambassador Volker Heinsberg to the Third Preparatory Committee of the 2005 Review Conference of the NPT, 30 April 2004.**
http://www.reachingcriticalwill.org/legal/npt/prepcom04/germanyCL1.pdf

Thirteen Steps: "...setting out the conditions for achieving a nuclear weapon free world, the complete elimination of nuclear weapons can only be achieved by way of an incremental approach. Such an approach underlies the 13 practical steps for the systematic and progressive implementation of Article VI adopted by the 2000 NPT Review Confernce. These 13 steps remain the performance benchmark for the disarmament process. As such they should not be called into question."- **Statement by Ambassador Volker Heinsberg to the Third Preparatory Committee of the 2005 Review Conference of the NPT, 30 April 2004.** http://www.reachingcriticalwill.org/legal/npt/prepcom04/germanyCL1.pdf

Non-proliferation and disarmament: "The community of states must do everything in its power to counter (threats to security) with a new push for non-proliferation and global disarmament. In the nuclear field, the commitment contained in the Non-Proliferation Treaty to complete nuclear disarmament remains crucial." - **Statement by Joschka Fischer, Minister for Foreign Affairs, to the Conference on Facilitating the Entry-into-force of the Comprehensive Nuclear Test-Ban Treaty, 11 November 2001.** http://www.un.org/webcast/ctbt/statements/germanyE.htm

Greece

1. Location, Amount and Details of U.S. Nuclear Weapons Deployment/storage

Nuclear Weapons Storage Sites

Location	No. of Vaults	Maximum Capacity	No. of deployed weapons
Araxos	6	24	0
TOTAL			**0**

In the spring of 2001, 20 B61 bombs were airlifted out of the Araxos Air Base after 40 years of US nuclear weapons deployment to Greece. Neither Greece or Washington will confirm nor deny their removal. http://www.nrdc.org/nuclear/euro/euro.pdf

2. Location and Capability of Nuclear Facilities

Power Reactors- 0

Research Reactors
Operational: 2
Shut down: 1
Decommissioned: 0
Under construction: 0
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

3. Nuclear Activities

Research Centers
INP- Institute of Nuclear Physics
Institute of Nuclear Technology and Radiation Protection
Nuclear Technology Lab
http://www.radwaste.org/research.htm

Nuclear Cooperation
Greece, although it does not have any power reactors, is a member of Euratom.

Greece also has a bilateral nuclear cooperation agreement with Canada.
http://www.dfait-maeci.gc.ca/nndi-agency/list-en.asp

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
Antarctic Treaty, 8 January 1987
APM Convention, 25 September 2003
Biological Weapons Convention, 10 December 1975
Certain Conventional Weapons Convention, 28 January 1992
Comprehensive Nuclear Test-Ban Treaty, 21 April 1999
Chemical Weapons Convention, 22 December 1994
Nuclear Non-Proliferation Treaty, 11 March 1970
Outer Space Treaty, 19 January 1972
Sea Bed Treaty, 28 May 1985

Greece ratified the IAEA Additional Protocol on 30 April 2004.

Multilateral Groups
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Nuclear Suppliers Group
Wassenaar Arrangement
Zangger Committee

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Reporting: "Greece views regular reporting on the implementation of article VI of the NPT and of paragraph 4 (c) of the Declaration on 'Principles and Objectives for Nuclear Non-Proliferation and Disarmament' produced by the 1995 NPT Review and Extension Conference, as one of the fundamental elements of a genuinely strengthened review process. Greece is of the view that regular reporting helps to achieve transparency and, at the same time, to promote increased confidence in the overall NPT regime. Greece believes that transparency, confidence-building and the irreversibility of commitments made in the area of disarmament by States parties to the Treaty contributes to strengthening the principles of the NPT." - **Report submitted by Greece to the Third Preparatory Committee of the Seventh Review Conference of the NPT (NPT/CONF2005/PC.III/29).**

Safeguards: "While nuclear material accountancy including containment and surveillance will continue to play a key role in providing credible assurance of the non-diversion of nuclear material from peaceful activities, the implementation of the Additional Protocol provides the full potential of detecing undeclared nuclear activities. This approach will require the evaluation of a vast range of more diverse information. In the implementation of the new measures, a mechanistic approach should be avoided and more attention should be paid to the qualitative aspects. The process of defining the optimum combination of these measures must be developed on a non-discriminatory basis for states that have comprehensive safeguards and an additional protocol in force." - **Statement by Ambassador Tassos Kriekoukis, on behalf of the European Union to the Second Preparatory Committee conference of the Seventh Review Conference of the NPT, 5 May 2003.**
http://www.reachingcriticalwill.org/legal/npt//2003statements/2003statements/May5/greece.pdf

Export controls: "Co-ordination of national export control policies contributes significantly to the non-proliferation objectives of the NPT. In this regard, the work of the Zangger Committee was highlighted and welcomed by previous Review Conferences...all States parties to the NPT (should) follow the understandings of the Zangger Committee and the guidelines of the (Nuclear Suppliers Group) when considering exports of sensitive nuclear materials, equipment and technologies." - **Statement by Ambassador Tassos Kriekoukis, on behalf of the European Union to the Second Preparatory Committee conference of the Seventh Review Conference of the NPT, 5 May 2003.**
http://www.reachingcriticalwill.org/legal/npt//2003statements/2003statements/May5/greece.pdf

Italy

1. Location, Amount and Details of U.S. Nuclear Weapons Deployment/storage

In the mid-1990s, weapons stored at Rimini Air Base were transferred to Ghedi Torre.

Nuclear Weapons Storage Sites

Location	No. of Vaults	Maximum Capacity	No. of deployed weapons
Aviano Airbase	18	72	50
Ghedi Torre Airbase	11	44	40
TOTAL			**90**

http://www.nrdc.org/nuclear/euro/euro.pdf

2. Location and Capability of Nuclear Facilities

Power Reactors
Operational: 0
Shut down: 4
Decommissioned: 0
Under constructon: 0
Planned: 0
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 5
Shut down: 4
Decommissioned: 5
Under construction: 0
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Italy does not have commercial reprocessing or enrichment facilities; fuel is sent to the UK for reprocessing.

3. Fissile Material Holdings

Unirradiated Civil Plutonium
In country: 0 (unknown)
In other countries: 2.3-2.4 tons
Total: 2.3-2.4 tons

Separated Civil Plutonium
end 2002: 05.-1 ton
2010 (projected): 1 ton
2015 (projected): 1 ton
2020 (projected): 1 ton
http://www.isis-online.org/global_stocks/separated_civil_pu.html

Radioactive waste disposal
According to a 1999 government plan for decommissioning, three main goals relating to nuclear waste disposal were outlined:

1) All on-site radioactive waste should be treated and conditioned within the next ten years with the view to subsequent transport to a national repository.
2) Site selection and construction of a national repository for the disposal of LLW and ILW should be accomplished within ten years. The site should also be suitable for the interim storage of long-lived LLW, ILW and spent fuel, plus residues from former reprocessed fuel.
3) Decommissioning of nuclear power plants, with a view to returning the sites to green field status, should be achieved within the next 20 years.

Currently, approximately 55,000 cubic meters of LLW and ILW and 8,500 cubic metres of HLW are

stored in 140 sites in 25 cities around the country.

The government was exploring a possible national repository for LLW and ILW at an abandoned salt mine near the town of Scanzano Jonico but withdrew after two weeks of protests by local residents in December, 2003. Following the withdrawal, the government established a commission to select another site for a national repository. http://www.world-nuclear.org/nb/nb03/nb0348.htm

4. Nuclear Activities

Research Centers
l'ACN Scientific Labs
Centro Ricerche di Casaccia
Centro Ricerche di Frascati
Centro Ricerche di Saluggia
CeSNEF: Centro Studi Nucleari Enrico Fermi
CNR: Consiglio Nazionale delle Ricerche
ECT: European Centre for Theoretical Nuclear Physics
Elettra Synchrotron Light Source
Eurotherm
ICTP: International Centre for Theoretical Physics
INFM: Istituto Nazionale per la Fisica della Materia
INFN: Istituto Nazionale di Fisica Nucleare
JRC Ispra Environmental Institute
LNF: Laboratori Nazionali di Frascati
http://www.radwaste.org/research.htm

Nuclear Cooperation
Italy's international nuclear cooperation is mainly through Euratom, of which it is a founding member.

5. International Non-proliferation Efforts

Italy is also a participant in the G8 Global Partnership against the spread of weapons and materials of mass destruction, launched in Kananaskis, Canada 2002.

Treaties Signed and Ratified, date of deposit
Antarctic Treaty, 18 March 1981
APM Convention, 23 April 1999
Biological Weapons Convention, 30 May 1975
Certain Conventional Weapons Convention, 20 January 1995
Comprehensive Nuclear Test-Ban Treaty, 1 February 1999
Nuclear Non-Proliferation Treaty, 4 May 1975
Outer Space Treaty, 4 May 1972
Sea Bed Treaty, 3 September 1974

Italy ratified the IAEA Additional Protocol on 30 April 2004.

Multilateral Groups
Conference on Disarmament
Nuclear Suppliers Group
Hague Code of Conduct
Missile Technology Control Regime
Proliferation Security Initiative
Wasenaar Arrangement
Zangger Committee

6. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Irreversibility: "The significant reductions of nuclear weapons through plurilateral, bilateral and unilateral nuclear disarmament and arms limitation treaties and processes in the past decades have brought to the attention of the international community that disarmament engagements are meaningless unless the weapons involved are either physically destroyed or appropriately disposed of."
- **Statement by Ambassador Carlo Trezza to the Third Preparatory Committee of the Seventh Review Conference of the NPT, 30 April 2004**.
http://www.reachingcriticalwill.org/legal/npt/prepcom04/italyCL1.pdf

"...not only do we have to face the problem of negotiating disarmament agreements, we also have to cope with the additional problem of actually destroying those weapons. In some cases this requires an international co-operation, although the primary responsibility of countries for destruction and safety should remain unchanged." - **Statement by Ambassador Carlo Trezza to the 59th session of the General Assembl First Committee on Disarmament and International Security, 18 October 2004**. http://www.reachingcriticalwill.org/political/1com/1com04/thematic/italydist.pdf.

Universalization: "The European Union reiterates its request to India and Pakistan to adhere to the Nuclear Non-Proliferation Treaty and to act in compliance with UN Security Resolution 1172."
- **Prime Minister Silvio Berlusconi, on behalf of the EU, addressing the 58th session of the General Assembly, 2003**. http://www.un.org/webcast/ga/58/statements/itaeng030923.htm

Netherlands

1. Location, Amount and Details of U.S. Nuclear Weapons Deployment/storage

Nuclear Weapons Storage Sites

Location	No. of Vaults	Maximum Capacity	No. of deployed weapons
Volkel Air Base	11	44	20
TOTAL			**20**

These levels have been consistent since 1986.
http://www.nrdc.org/nuclear/euro/euro.pdf

2. Location and Capability of Nuclear Facilities

The Netherlands does not actively promote nuclear energy though it is involved in research activities. Nuclear policy is primarily regulated and influenced by the Ministry of Economic Affairs.
http://www.antenna.nl/nukeatlas/atlas/nl.html

Power Reactors
Operational: 1
Shut down: 1
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 3
Shut down: 0
Decommissioned: 2
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

The Netherlands plans to shut its sole nuclear power plant, Borssele, in 2013 unless parliament decides otherwise.

Currently, the Borssele reactor, built in 1973 with an anticipated lifespan of 40 years, produces 4-5% of Dutch electricity.

Uranium Enrichment and Reprocessing
Almelo, the lone enrichment facility in the Netherlands, is owned and operated by URENCO, a joint Dutch-German-British company.

Reprocessing takes place elsewhere in the EU, namely France and UK.

3. Fissile Material Holdings

Unirradiated Civil Plutonium
In country: 0
In other countries: 2 tons
Total: 2 tons

Separated Civil Plutonium
end 2002: 2 tons
2010 (projected): 3 tons
2015 (projected): 3 tons
2020 (projected): 3 tons

http://www.isis-online.org/global_stocks/separated_civil_pu.html

Radioactive waste disposal
The Dutch government's radioactive waste policy was outlined in 1984. This policy has two main components, with a third added in 1993:

1) the storage of all radioactive wastes at one surface facility for the next 50 to 100 years;

2) the research into final disposal in deep geological formations;
3) final disposal must take place in such a way that waste is retrievable for a "lengthy" period of time.

Low-level waste: Central Organization for Radioactive Waste (COVRA) constructed and operates facilities for the treatment and storage of low and intermediate level radioactive wastes at Borsele.

High-level waste: COVRA is constructing a facility (HABOG) for the storage of high level wastes at the same location.

In the period from 1984 to 1993, in the framework of the Program for Disposal on Land (OPLA), research into final disposal focused on rock salt formations. A repository design was developed which was based upon deep vertical bore holes from the galleries. The principal conclusion of the OPLA program was that final disposal in rock salt was technically feasible. The government also recognizes that the technical and societal complexity of the waste disposal requires international cooperation.

4. Nuclear Activities

Research Centers
AMOLF/FOM: Institute for Atomic & Molecular Physics
ECN: Energieonderzoek Centrum Nederland
FELIX
FOM: Fundamenteel Onderzoek der Materie
Interfacultair Reactor Instituut
National Inst for Nuclear Physics
NWO: Nederlandse Organisatie voor Wetenschappelijk Onderzoek / Organization for Scientific Research
TNO: Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek
http://www.radwaste.org/research.htm

Nuclear Cooperation
Most of Dutch nuclear cooperation goes through URENCO, a joint German-Dutch-British venutre established in the early 1970s. URENCO works with the manufacture and marketing of centrifuges and associated pipe work; provision of technical design services in connection with the construction of uranium enrichment facilities; research into new enrichment technologies; and the manufacture of precision-engineered components for the aerospace industry in the Netherlands (Aerospace) and the manufacture of carbon fibre designed products in Germany (Composites).

URENCO operates the Almelo enrichment facility in Netherlands as well as Capenhurst in the UK and Gronau in Germany.
http://www.urenco.com/index.php?id=202&pagename=Urenco+Group

5. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
Antarctic Treaty, 30 March 1967
APM Conventionm, 12 April 1999
Biological Weapons Convention, 10 April 1972
Certain Conventional Weapons Convention, 18 June 1987
Comprehensive Nuclear Test-Ban Treaty, 23 March 1999
Chemical Weapons Convention, 30 June 1995
Nuclear Non-Proliferation Treaty, 2 May 1975
Outer Space Treaty, 10 October 1969
Sea Bed Treaty, 14 January 1976

Netherlands ratified the Additional Protocol 30 April 2004.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Nuclear Suppliers Group
Proliferation Security Initiative
Zangger Committee
Wassenaar Arrangement

6. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Non-compliance: "...there is still too much indifference about growing clandestine nuclear activity and blatant non-compliance by some parties to the Treaty. In fact, over the past ten years more than two hundred incidents involving illicit traficking in nuclear materials have been documented. Therefore, if in the long run we want to maintain global political support for the NPT bargain, and discourage countries that might want to acquire nuclear weapons from doing so, and discourage countries that might want to acquire nuclear weapons from doing so, both nuclear weapon states and non-nuclear weapon states will have to keep their end of that bargain."

Thirteen Steps: "For the Netherlands, the benchmark for progress towards nuclear disarmament is the Thirteen Steps approach we agreed in 2000. While some of those steps have been overtaken by events, like those relating to START and the ABM Treaty, many of the Thirteen Steps have lost none of their relevance...It is clear that the Thirteen Steps will have to be updated. That will be a major challenge for the Review Conference- to say the least- given that the consensus on some of those steps has eroded, and that they cannot simply be replaced with something different."

Reporting: "Although the nuclear weapon states have provided a good deal of information, I think the world expects them to be even more open about their nuclear capabilities, wherever their national security allows. We urge the nuclear weapon states to report regularly on their aggregate number of warheads, delivery systems and stocks of fissile materials. Transparency provides the basis for measuring progress in nuclear disarmament and for building confidence that will enable the NPT to remain the guardian of non-proliferation and peaceful uses."

Proliferation: "One of the greatest threats to international peace and security today is the proliferation of weapons of mass destruction and their means of delivery. The international community must effectively address this challenge.... treaty regimes and export control arrangements are in place to prevent the spread of weapons of mass destruction and their delivery systems. These instruments, however, have not succeeded in putting a complete stop to proliferation. Additional measures are necessary, in particular to combat the risk of terrorist organizations gaining access to those weapons and delivery systems. In this context, the EU welcomes the adoption of Security Council Resolution 1540, which is fully in line with the EU strategy." -**Statement by Dr. Bernard Bot, Minister of Foreign Affairs to the 59th session of the General Assembly, 21 September 2004**.
http://www.un.org/webcast/ga/59/neteng040921.pdf

Statements are by Dr. Bernard Bot, Minister of Foreign Affairs to the Conference on Disarmament, 15 March 2005 unless otherwise noted, available at http://www.reachingcriticalwill.org/political/cd/speeches05/Mar15Netherlands.pdf

Turkey

1. Location, Amount and Details of U.S. Nuclear Weapons Deployment/storage

In the mid-1990s, nuclear weapons previously stored at Akinci Air Base and Balikesir Air Base were moved to Incirlik Air Base.

Nuclear Weapons Storage Sites

Location	No. of Vaults	Maximum Capacity	No. of deployed weapons
Akinci Airbase	6	24	0
Balikesir Airbase	6	24	0
Incirlik Airbase	25	100	90
TOTAL			**90**

http://www.nrdc.org/nuclear/euro/euro.pdf

2. Location and Capability of Nuclear Facilities

Contary to the government's intention to install the country's first nuclear power plant in Akkuyu, the cabinet decided on 25 July 2000 to postpone the Akkuyu project, citing financial constraints.

In November 2004, Energy Minister Hilmi Guler announced Turkey's plans to construct three nuclear plants ready for operation beginning in 2011, supplying 8-10% of Turkey's energy. No date has yet been set for a tender and no site has been selected.
Agence France Presse, 19 November 2004.

Power Reactors-0

Research Reactors
Operational: 1
Shut down: 2
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Turkey does not have any enrichment or reprocessing facilities.

Uranium Mines
Uranium deposits are located at Köprübasi but no uranium has been produced.

3. Nuclear Activities

Research Centers
ÇNRTC- Çekmece Nuclear Research and Training Center
ICHMT- International Center for Heat and Mass Transfer
Nükleer Enerji Enstitüsü (Institute for Nuclear Energy)
TUBITAK- Scientific and Technical Research Council
http://www.radwaste.org/research.htm

Nuclear Cooperation
The Turkish Speaking States Nuclear Cooperation, Research and Traning Center organizes the pro-

tocols for cooperation between Turkish speaking countries.
http://www.taek.gov.tr/taek/tudnaem/bulten/1_avrasya_bulteni_makaleler/25.pdf

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
Antarctic Treaty, 24 January 1996
APM Convention, 25 September 2003
Biological Weapons Convention, 25 October 1974
Certain Conventional Weapons Convention, 26 March 1982
Comprehensive Nuclear Test-Ban Treaty, 16 February 2000
Chemical Weapons Convention, 12 May 1997
Nuclear Non Proliferation Treaty, 17 April 1980
Outer Space Treaty, 27 March 1968
Sea Bed Treaty, 19 October 1972

Turkey ratified the Additional Protocol on 6 July 2000.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Proliferation Security Initiative
Wassenaar Arrangement
Zangger Committee

6. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

NWFZ: "Establishment of Nuclear Weapon Free-Zones is a measure against proliferation of nuclear weapons, envisaged in Article VII of NPT. Turkey supports the establishment of Nuclear Weapon Free-Zones wherever practically feasible. Assurance of total absence of nuclear weapons and other WMD in a particular geographical area would have direct positive implications on the security concerns of the states in that specific region. In this context, Turkey supports the idea of creating a WMD Free Zone in the Middle East and encourages all efforts for having a common regional understanding on this project with the participation of all parties concerned." - **Statement by Mr. Mehmet Haluk Ilicak, Deputy Director General for OSCE, Disarmament and Arms Control to the 59th session of the General Assembly First Committee on Disarmament and International Security, 5 October 2004**. http://www.reachingcriticalwill.org/political/1com/1com04/statements/turkey.pdf

Additional Protocol: "The International Atomic Energy Agency's international safeguard system is an essential part of the global nuclear non-proliferation regime. We call upon all states that have not yet done so to conclude additional protocols with IAEA and we support all initiatives to strengthen the conditions of supply in highly sensitive nuclear equipment and technology. In this vien, Turkey supports the proposal to make the Additional Protocol a condition of supply." - **Statement by Mr. Mehmet Haluk Ilicak, Deputy Director General for OSCE, Disarmament and Arms Control to the 59th session of the General Assembly First Committee on Disarmament and International Security, 5 October 2004**. http://www.reachingcriticalwill.org/political/1com/1com04/statements/turkey.pdf

Non-proliferation: "The world needs the elimination of weapons of mass destruction, not their proliferation. The inherent logic of this argument has been recognized by the community of nations that have adhered to the Nuclear Non-Proliferation Treaty. We strongly support the efforts aimed at increasing the membership to non-proliferation agreements and regimes." - **Statement by H.E. Mr. Abdullah Gül, Deputy Prime Minister to the 58th session of the General Assembly, 26 September 2003**.

Austria

1. Location and capability of nuclear facilities

Austria does not operate any nuclear power plants. As a result of a referendum in 1978 rejecting the beginning of operation of a nuclear power plant at Zwentendorf, the Austrian parliament prohibited the use of nuclear energy in the country. The Chernobyl accident in 1986 further reinforced the Austrian antagonism to nuclear power, shared by both political parties and the public at large, and since then Austrians' opposition to nuclear power plants in neighboring countries has also increased.
http://www.foratom.org/Content/Default.asp?PageID=632
http://europa.eu.int/comm/euratom/index_en.html

Research Reactors
Operational: 2
Shut down: 1
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Power Reactors- 0

2. Fissile Material Holdings

Radioactive waste disposal
As there are no nuclear power plants in Austria, there is no need for intermediate or final storage capacities in the country for high-level radioactive waste. The small quantities of high-level waste resulting from the activities of the research reactors are returned to the United States under a framework agreement concerning nuclear fuel of US origin. Most radioactive waste produced in Austria is collected and treated at the Austrian Research Centre, Seibersdorf (ARCS), where the ASTRA research reactor was located. According to the country's legislation the costs of radioactive waste management have to be borne by the producer and thus a fee has to be paid for the treatment of radioactive waste at the time of delivery to ARCS.

The remaining spent fuel from the ASTRA research reactor after the shut down of it in July 1999 was transferred to Savannah River, US, in 2001 for final storage. All radioactive material will be removed from the reactor building, which will be used as an intermediate storage for conditioned radioactive waste, scheduled to be operational until 2012.
http://europa.eu.int/comm/euratom/index_en.html

3. Nuclear Activities

Research Centers
Austrian Academy of Sciences
Atominstitut of the Austrian Universities
Austrian Research Centre, Seibersdorf
VERA: Vienna Environmental Research Accelerator
http://www.radwaste.org/research.htm

The TRIGA Mark II research reactor, which is operated by the Atominstitut of the Austrian Universities, is the closest research reactor to the IAEA headquarters and is therefore recurrently used by IAEA staff for the development and testing of safeguards instruments.

Nuclear Cooperation
As Austria does not use nuclear power, its international cooperation efforts are focused on other forms of energy. Within the European Union, Austria has cooperated in several efforts in the area of energy policy, including the SAVE II-program (a directive on energy efficiency), the Altener II-program (a

directive on the promotion of electricity from renewable energy sources in the internal electricity market), the directive on the single market in natural gas, and the SYNERGY-program (cooperation with non-member countries in the energy sector), among others. http://europa.eu.int/comm/euratom/index_en.html

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
APM Convention, 29 June 1998
Biological Weapons Convention, 10 August 1973
Certain Conventional Weapons Convention, 14 March 1983
Chemical Weapons Convention, 17 August 1995
Comprehensive Nuclear Test-Ban Treaty, 13 March 1998
Nuclear Non-Proliferation Treaty, 27 June 1969
Outer Space Treaty, 26 February 1968
The Seabed Treaty, 10 August 1972

Austria ratified the IAEA Additional Protocol 30 April 2004.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Nuclear Suppliers Group
Wassenaar Arrangement
Zangger Committee

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Export Controls: "Export controls play an important role in nuclear non-proliferation. Nuclear cooperation involving the transfer of nuclear goods or tecnology can only take place if and when the exporting state is convinced that the conditions in the recipient country provide sufficient assurance that the nuclear items supplied would not be diverted from peaceful uses to non-peaceful purposes." - **Statement by Mrs. Christine Göstl to the Third Meeting of the Preparatory Committee for the 2005 NPT Review Conference, 29 April 2004**
http://www.reachingcriticalwill.org/legal/npt/prepcom04/austriaCL2.pdf

Verification: "Among the key measures identified to combat the proliferation of nuclear weapons and to detect undeclared nuclear activities, is, of course, the strengthening of the verification capabilities of the International Atomic Energy Agency (IAEA) by means of strengthening its safeguards system. Hence, the conclusion of comprehensive safeguards agreements and additional protocols as well as the swift implementation of the so-called 'integrated safeguards system' are indispensable instruments for the IAEA to be able to verify compliance of States Parties to the NPT." - **Explanation of Vote on draft resolution 58/L.53 "A path to the total elimination of nuclear weapons," 15 October 2003.**
http://www.reachingcriticalwill.org/political/1com/1com03/voting/L53AustriaEoV.pdf

Thirteen Steps: " We also regret that some NPT Parties play down the significance of the 13 steps, maintaining that some are only long-term goals or that some have been overtaken by events. Let me stress once again that each of the 13 concrete steps has been the subject of intensive negotiations up to and throughout the 2000 Review Conference and that all NPT parties have at the time agreed to all of them. This does, of course, not mean that minor adjustments are excluded if these contribute

to strengthening the respective step. The 13 steps are, however, not a plate from which nuclear weapon states can freely choose. All of the 13 steps are important and should have the full support of all NPT parties."- **Statement by Mr. Robert Zischg, Deputy Director, Ministry of Foreign Affairs, Department for Disarmament, Arms Control and Non-Proliferation to the Third Meeting of the Preparatory Committee for the 2005 NPT Review Conference, 30 April-3 May 2004** (emphasis in original text).
http://www.reachingcriticalwill.org/legal/npt/prepcom04/AustriaCL1.pdf

Bulgaria

1. Location and capability of nuclear facilities

Bulgaria's nuclear program began in 1966 with commercial nuclear facilities agreements with the Soviet Union. In 2003, some 38% of the electricity came from nuclear power, the reactors requiring 340 tons of uranium.
http://www.world-nuclear.org/info/reactors.htm; http://www.world-nuclear.org/info/inf87.htm

Shutdown dates for two reactors were set for 2006, as part of the negotiations on Bulgaria's accession to the European Union. The Bulgarian government is now aiming to renegotiate the agreed 2006 shutdown and gain a reprieve until the licences expire (2011 & 2013).
http://www.world-nuclear.org/info/inf87.htm

Power Reactors
Operational: 4
Shut down: 2
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 0
Shut down: 1
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Bulgaria has no enrichment and reprocessing facilities; all fuel cycle services are provided by Russia.
http://www.world-nuclear.org/info/inf87.htm

2. Fissile Material Holdings

Unirradiated Civil Plutonium- 0 (end of 2003)
Irradiated Civil Plutonium- 8.8 tons (end of 2003)
http://www.isis-online.org/global_stocks/plutonium_watch2004.html

Radioactive waste disposal
Low- and intermediate- level waste: Operation of a new facility at the Kozloduy nuclear power plant for the processing and conditioning low- and intermediate-level radioactive waste started in February 2001. In January 2002, the Bulgarian government also approved the use of a new radioactive waste treatment, conditioning and storage complex at Kozloduy. The complex includes a radioactive waste treatment workshop, a conditioned waste storage facility and a service unit.
http://www.world-nuclear.org/waste/report2002/chapter4.htm

High-level waste: Since Bulgaria has no facility for disposing high-level waste, spent fuel rods are disposed in Russia. The plan for safe management of the nuclear fuel cycle at Kozloduy includes increasing the capacity of existing spent fuel wet storage facilities, and constructing a new dry storage; first stage is expected to be commissioned in 2006.
http://www.bnsa.bas.bg/documents/JC_pdf/English/JC_NR_Eng.pdf

3. Nuclear Activities

Research Centers
Institute for Nuclear Research and Nuclear Energy (Sofia)

Nuclear Cooperation
EU: Memorandum of Understanding calling for an agreement on early closure dates of Kozloduy units 3 and 4. The European Commission has insisted on closure before 2006, but there has been a Bulgarian proposal for the units to be allowed to operate after 2006, if an EU peer review concludes that they are

safe enough for further operation. An IAEA expert mission in June 2002 reported on significant safety improvement.

EU, Russia, US: Modernization of units 5 and 6 at Kozloduy by the European Consortium Kozloduy (created in 1996 by Framatome, Siemens and Atomenergoexport of Russia) and Westinghouse.
http://www.foratom.org/Content/Default.asp?PageID=704

Russia: Interest in constructing the second nuclear power plant in Belene by the Danube River. However, Bulgaria's National Electricity Transmission Company chose Parsons E&C Europe Limited for an architect. The contract has a term of ten years.
http://novinite.com

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
APM Convention, 4 September 1998
Biological Weapons Convention, 2 August 1972
Certain Conventional Weapons Convention, 15 October 1982
Comprehensive Nuclear-Test-Ban Treaty, 29 September 1999
Chemical Weapons Convention, 10 August 1994
Nuclear Non-Proliferation Treaty, 5 September 1969
Open Skies Treaty, 15 April 1994
Outer Space Treaty, 28 January 1967
Sea Bed Treaty, 16 April 1971

Bulgaria ratified the IAEA Additional Protocol 10 October 2000.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Nuclear Suppliers Group
Wassenaar Arrangement
Zangger Committee

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Arms control: "The need for effective arms control measures remains urgent. The US-Russian agreement on strategic nuclear arms is a landmark in the history of disarmament negotiations. Bulgaria welcomes the ongoing security dialogue between them, as well as the establishment of a new framework of interrelation between NATO and the Russian Federation, which benefits the global political atmosphere."

Export controls: "We have adopted one of the most stringent laws on export control over arms trade and have taken decisive steps to improve enforcement in all its aspects."

Non-proliferation: "We support the comprehensive and integrated approach of the United Nations to non-proliferation of weapons of mass destruction. Further strengthening of the non-proliferation regime is imperative if we are to prevent the use of such weapons for terrorist purposes, for international blackmail and disturbing and threatening the world peace."

All excerpts are taken from a statement by President Georgi Parvanov to the 57th session of the General Assembly, 12 September 2002 available at:
http://www.reachingcriticalwill.org/political/1com/1com02/disarmref57.html

Czech Republic

1. Location and capability of nuclear facilities

Coal remains the main source of energy and is estimated to cover about 40% of energy consumption in 2005; electricity generated from nuclear power plants currently represents 20% of total electricity production. The uranium requirement for the Czech nuclear power reactors was 474 tons in 2004. A shift to nuclear power in the 1950s was determined by scarce oil resources and the influence of the former Soviet Union. Soviet designs were used in construction of both Dukovany and Temelin nuclear power plants. Work is underway to complete the Temelin plant, upgrade the Dukovany plant and construct a spent fuel storage facility- initiatives that would increase the production of nuclear energy to 40-45%. In a recently approved long-term energy policy, the Czech government committed to a construction of two reactors before 2030. http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2002/index.htm; http://www.niauk.org,; http://www.world-nuclear.org/info/reactors.htm

Power Reactors
Operational: 6
Shut down:
Decommissioned: 0
Proposed: 2
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 3
Shut down: 0
Decommissioned: 2
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Uranium Mines
No enrichment or reprocessing facilities.

Mine	Location	Status
Brevniste	North Bohemia	no information
Brzkov	West Moravia	closed
Brzkov deposit	West Moravia	exploration halted
Chotebor	Bohemia	no information
Dylen	Bohemia	reclamation ongoing
Hájek	Northwest	closed
Hamr mine	North Bohemia	closed
Horni Slavkov	Bohemia	reclamation complete
Jáchymov	Central Bohemia	closed
Jasenice	West Moravia	reclamation ongoing
Javornik-Zálesi	North Bohemia	no information
Krizany	North Bohemia	reclamation ongoing
Licomerice-Brezinka	South Moravia	reclamation complete

Mine	Location	Status
Okrouhlá Radoun	South Bohemia	reclamation complete
Olsi	West Moravia	reclamation complete
Predborice	North Bohemia	no information
Pribam	Bohemia	reclamation ongoing
Pucov	Moravia	reclamation complete
Rozná mine	West Moravia	operating
Slavkovice-Petrovice	Southeast	no information
Stáz pod Ralskem	North Bohemia	reclamation ongoing
Svatá Anna	Bohemia	no information
Vitkov	Central Bohemia	reclamation ongoing
Vnitrosudetská	North Moravia	no information
Zadni Chodov	West Bohemia	reclamation ongoing

2. Fissile Material Holdings

Unirradiated Civil Plutonium- 0
Irradiated Civil Plutonium- 5.6 tons
http://www.isis-online.org/global_stocks/plutonium_watch2004.html

Radioactive waste disposal
Low-level waste: In 1993 the former Czechoslovak Bohunice plant (currently Slovakia) ceased to accept spent fuel from the Dukovany plant. The same year, Russia decided it would only accept Czech's spent fuel for reprocessing and not disposal. A new interim storage facility will be constructed at the Dukovany site. The existing facility has a capacity of 600 tons, and the overall capacity should be sufficient to store all the spent fuel produced during the lifetime of the plant.
http://ceg.fsv.cvut.cz/EN/ceg-uvod/02_ukladani.htm
http://www.foratom.org/Content/Default.asp?PageID=705

High-level waste: Nuclear Research Institute is overseeing planning for a deep geological repository project to be operational in 2035. Several localities have been suggested to house both an underground repository and an underground laboratory; none of them has been selected yet.
http://ceg.fsv.cvut.cz/EN/ceg-uvod/02_ukladani.htm

3. Nuclear Activities

Research Centers
National Radiation Protection Institute
Nuclear Research Institute Rez
National Institute for Nuclear, Biological and Chemical Protection
Research Institute of Fuel and Energy Complex
Energoprojekt Praha, a.s.
Skoda - UJP Praha, a.s.
Nuclear Physics Institute (Academy of Sciences)
Institute of Plasma Physics
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2002/index.htm
http://www.radwaste.org/research.htm

Nuclear Cooperation
US: Westinghouse company contracted to upgrade and complete two VVER-1000 units at Temelin, as well as supply plant information system to integrate maintenance, materials and documentation, management and operations support for 13 Czech nuclear and fossil-fueled power plants. The company also provides fuel for the Temelin plant; fuel is manufactured in the US, with Czech Skoda Plezn participating in fuel testing and development.

Russia: - Russian company Mashinostroyitelniy Zavod Electrosta supplies fuel for Dukovany plant.
- Agreement (1994) allows Russia to compete for contracts to supply enriched uranium and fabricated fuel for Czech nuclear power plants.
- Russia also provides uranium to Czech Republic, with exception of uranium used for the Dukovany plant. Russia also provides conversion, enrichment and fuel fabrication services.

UK: Enrichment and conversion services
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/index.htm

Germany: Supplied fresh fuel for the Dukovany plant.

Canada: Starting in 1998, Cameco Corporation supplies uranium hexafluoride, produced at Cameco's facilities in Ontario, to Czech Republic.

EU: Czech Republic is part of the EU's Phare nuclear safety program, providing funding to update nuclear regulations and improve safety, as well as improve fuel cycle and waste management activities, and off-site emergency preparedness.
http://www.insc.anl.gov/neisb/neisb4/NEISB_4.2.html

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
APM Convention 26 October 1999
Biological Weapons Convention 29 September 1993
Certain Conventional Weapons Convention, signed 22 February 1993
Comprehensive Nuclear Test-Ban Treaty, 11 September 1997
Chemical Weapons Convention 6 March 1996
Nuclear Non-Proliferation Treaty, 9 April 1993
Outer Space Treaty, 29 September 1993
Sea Bed Treaty, 9 April 1993

Czech Republic ratified the IAEA Additional Protocol 8 Sept 2000.

Multilateral Groups
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Nuclear Suppliers Group
Proliferation Security Initiative
Wassenaar Arrangement
Zangger Committee

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Disarmament: "The Czech Republic supports all international efforts in the field of disarmament, arms control, including verification of non-proliferation of weapons of mass destruction and their means of delivery. This process is a long-term priority of Czech foreign policy." - **Statement by Minister of Foreign Affairs Cyril Svoboda to the 58th Session of the General Assembly, 29 September 2003.**
http://www.un.org/webcast/ga/58/statements/czeceng030929.htm

Additional Protocol: "The Additional Protocol, which creates an integral part of the International Atomic Energy Agency safeguards system and strengthens the Nuclear Non-Proliferation Treaty, we consider to be a very important element of the verification system. That is why it is urgent for the States that have not entered into Safeguards Agreements with the International Atomic Energy Agency to do so and fulfill their obligations in accordance with Article III of the Nuclear Non-Proliferation Treaty. We are of the view that the Additional Protocol should be made the standard for all NPT Signatory States."- **Statement by Cyril Svoboda, Minister of Foreign Affairs to the 58th session of the General Assembly, 29 September 2003.**
http://www.un.org/webcast/ga/58/statements/czeceng030929.htm

Finland

1. Location and capability of nuclear facilities

About 26 % of the total electricity supply in Finland is produced by nuclear power. The Loviisa Power Plant units are owned by Fortum Power and Heat Oy (Fortum) and started commercial operation in 1981. The Olkiluoto Power Plant units are owned by Teollisuuden Voima Oy (TVO) and started commercial operation in 1979 and 1982. The Loviisa power plant has two Russian (Soviet) VVER (PWR) reactors and the Olkiluoto power plant has two Swedish BWRs reactors.

In 2002, the Finnish government approved expanding the power production capacities of the Loviisa and Olkiluoto plants. There is also an application for a new nuclear power plant unit to be located at one of the existing nuclear plant sites.
http://www.iaea.org/programmes/a2/index.html; http://www.foratom.org/Content/Default.asp?PageID=706

Power Reactors
Operational: 4
Shut down: 0
Decommissioned: 0
Planned: 1
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 1
Shut down: 0
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Uranium Enrichment and Reprocessing
Finland stopped sending spent nuclear fuel to Russia for reprocessing in 1996. Fuel fabrication continues in Russia, Germany, Sweden and Spain.
http://www.ocrwm.doe.gov/factsheets/doeymp0410.shtml; http://www.uic.com.au/nip76.htm

Finland intends to place its fuel in a dry storage, awaiting the final repository currently under construction. http://www.bellona.no/en/international/russia/nuke_industry/waste_imports/22414.html

Uranium Mines
Paukkajanvaara- restored

2. Fissile Material Holdings

Unirradiated Civil Plutonium- 0

Irradiated Civil Plutonium- 11 tons (end of 2003)
http://www.isis-online.org/global_stocks/plutonium_watch2004.html

Radioactive waste disposal
Low- and intermediate- level waste: In Finland, low- and intermediate-level waste is disposed of in excavated repositories, constructed at both the Olkiluoto and Loviisa site. At Olkiluoto this kind of disposal facility has been in use since 1992. At Loviisa the repository was commissioned in 1998.
http://www.stuk.fi/english/nuclear_materials/can_be_done.html

High-level waste: Finland was one of the first countries to begin constructing an underground repository for high-level waste in 2001. Construction of the actual repository will start in 2010 and last for approximately ten years. http://www.yuccamountain.org/international.htm

3. Nuclear Activities

Research Centers
FEI - Finnish Environment Institute
HUT - Helsinki University of Technology
VTT - Valtion TeknillinenTutkimuskeskus
http://www.radwaste.org/research.htm

Nuclear Cooperation
Russia: In the context of the Finnish Bilateral Co-operation Programme with Neighboring Areas in North-West Russia and the Baltic countries, Finland started an assistance program with the Kola and Leningrad nuclear power plants in 1992, in order to improve their safety.

Eastern Europe: Finland also took part in an evaluation report (1992-96) on RBMK reactors (old reactors of Soviet design) under an EU initiative to develop nuclear safety programs directed at Central European and former Soviet Union states.

IAEA: Finnish experts have also taken part in IAEA initiatives to support and cooperate with the nuclear safety authorities of member countries in Central and Eastern Europe since 1992.
http://www.stuk.fi/english/npp/int_coop.html

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
Biological Weapons Convention, 4 February 1974
Certain Conventional Weapons Convention, 8 May 1982
Comprehensive Nuclear Test-Ban Treaty, 15 January 1999
Chemical Weapons Convention, 7 February 1995
Nuclear Non-Proliferation Treaty, 5 February 1969
Open Skies Treaty, 12 December 2002
Outer Space Treaty, 12 July 1967
Sea Bed treaty, 8 June 1971

Finland ratified the IAEA Additional Protocol 30 April 2004.

Multilateral Groups
Conference on Disarmament
Missile Technology Control Regime
Nuclear Suppliers Group
Wassenaar Arrangement
Zangger Committee

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Vertical Proliferation: "However, we must also recognize that the long-term success of our present and future efforts to strengthen the non-proliferation regime will also depend on the willingness of the nuclear-weapon states to refrain from developing new kinds of nuclear arms and reduce their own stockpiles of nuclear weapons and their reliance on them in their military doctrines." - **Statement by Mr. Erkki Tuomioja, Minister of Foreign Affairs to the CD Plenary Meeting, 15 March 2005.**
http://www.reachingcriticalwill.org/political/cd/speeches05/Mar15Finland.pdf

Universality: "The Review Conference in May should directly recognize that the NPT is and must remain the cornerstone of international security and stability and be observed by non-nuclear and nuclear-weapon states alike.

"At the same time, we cannot close our eyes to worrisome developments. At least three states with acknowledged or unacknowledged nuclear weapons remain outside the NPT despite insistent requests to join the Treaty by the international community over the years." - **Statement by Mr. Erkki Tuomioja, Minister of Foreign Affairs to the CD Plenary Meeting, 15 March 2005.** http://www.reachingcriticalwill.org/political/cd/speeches05/Mar15Finland.pdf

Hungary

1. Location and capability of nuclear facilities

Hungary's main energy resources are coal and lignite. Hungary is also a producer of crude oil and natural gas. In 1993, nuclear energy comprised 24% of total energy production, with coal comprising 31%, oil 16%, and gas 29%. The IAEA reports that in 1997, 55% of fuels were imported. Total nuclear energy consumption covers 12% of the total energy consumption. The nuclear power rectors of Hungary required 271 tons of uranium in 2004. http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/index.htm
http://www.world-nuclear.org/info/reactors.htm

Power Reactors
Operational: 4
Shut down: 0
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 2
Shut down: 0
Decommissioned: 1
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Uranium Mines
Pécs Mecsek (Baranva province) - closed

2. Fissile Material Holdings

Separated Civil Plutonium- 8.0 tons (end 2002)
http://www.isis-online.org/global_stocks/civil_pu.html

Radioactive waste disposal
Low- and intermediate-level waste: Low- and intermediate-level waste from the Pécs plant is stored in an Interim Storage Facility for five years and then transferred to dry storage there. A low-level waste repository operates at Puspökszilagy for institutional (non-nuclear) radioactive wastes. An extensive geological exploration program has been carried out near the village of Bátaapáti; the geological suitability was confirmed, and work will start on the proposed underground repository site in 2005.

High-level waste: Due to interim storage facilities, the government decided that there is no immediate need to establish a high-level waste repository before the middle of the century. However, exploratory work has been done in a clay stone formation and, based on existing data, a country-wide screening took place looking for potential sites. The long-term policy of high-level waste management is now in preparation. http://www.nea.fr/html/rwm/rf/hungary.pdf; http://www.golder.com/default.asp?LID=1&PID=653

3. Nuclear Activities

Research Centers
KFKI AEKI: Atomic Energy Research Institute of the Hungarian Academy of Sciences
MTAKK: Chemical Research Center
Fodor Jozef National Public Health Center
Frederic Joliot-Curie National Research Institute for Radiobiology and Radiohygiene
VEIKI: Institute for Electrical Power Research
Institute for Isotope and Surface Chemistry of the Hungarian Academy of Sciences
IKI: Institute of Isotope & Surface Chemistry -
Institute of Nuclear Research - Debrecen
Institute of Nuclear Techniques
MTA; Magyar Tudomá Akadé of the Hungarian Academy of Sciences
Research Institute for Particle & Nuclear Physics
AKKL: Research Laboratory of Materials & Environmental Chemistry

http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/index.htm
http://www.radwaste.org/research.htm

Nuclear Cooperation
US/European Commission: Provided funding (US$7 million) for a four year safety project at the Paks nuclear power plant.

Canada, *France*, *Romania*, *UK*, *US*: Hungarian Atomic Energy Authority maintains mutual information exchange agreements with counterpart organizations in Canada, France, Romania, UK, and US. http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/index.htm

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
APM Convention 6 April 1998
Biological Weapons Convention 27 December 1972
Certain Conventional Weapons Convention 14 June 1982
Comprehensive Nuclear Test-Ban Treaty, 13 July 1999
Chemical Weapons Convention 31 October 1996
Nuclear Non-Proliferation Treaty, 27 May 1969
Outer Space Treaty, 26 June 1967
Seabed Arms Control Treaty, 13 August 1971

Hungary ratified the IAEA Additional Protocol 4 April 2000.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Nuclear Suppliers Group
Wassenaar Arrangement
Zangger Committee

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Reporting: "Step 12 of the 13 practical steps agreed upon at the 2000 NPT Review Conference remains to be the basis for continued reporting. However, Hungary believes that, in order to assure a high number of submissions, a more general and comprehensive approach could prove to be more effective than the one outlined in Step 12." - **Implementation of the Treaty on the Non-Proliferation of Nuclear Weapons, report submitted by Hungary to the Third PrepCom of the 2005 Review Conference (NPT/CONF.2005/PC.III/18)** http://www.reachingcriticalwill.org/legal/npt/prepcom04/papers/hungary18.pdf

Additional Protocol: "Hungary considers the IAEA safeguard system as an indispensable mechanism to verify compliance with the NPT and to ensure nuclear transparency. Such a system promotes confidence essential for peaceful nuclear cooperation. Hungary believes that the Model Additional Protocol, together with a comprehensive safeguard agreement, now represents the verification standard and lends its full support to making the Additional Protocol mandatory under Article III of the Treaty. Such a decision should be taken at the 2005 Review Conference." - **Implementation of the Treaty on the Non-Proliferation of Nuclear Weapons, report submitted by Hungary to the Third PrepCom of the 2005 Review Conference (NPT/CONF.2005/PC.III/18)** http://www.reachingcriticalwill.org/legal/npt/prepcom04/papers/hungary18.pdf

Fissile Material Treaty: "The Fissile Material Cutoff Treaty is of critical importance to disarmament, non-proliferation and international security. The urgent need to commence negotiations was also confirmed by the final document of the NPT Conference. Therefore the start of these negotiations should be the next step on the way. Hungary supports all practical suggestions and initiatives, which can move the cause of the cutoff treaty into the right direction." - **Statement of Ambassador Rudolf Joó to the Conference on Disarmament, 15 March, 2001.**
http://www.reachingcriticalwill.org/political/cd/speeches01/hun150301.html

Norway

1. Location and capability of nuclear facilities

Norway's abundant water resources allow the country to generate nearly all of its electricity from hydropower facilities. Thermal and other renewable sources of energy, mainly wind, accounts for the remainder of total electricity generated. Norway is not a nuclear power state, but keeps a nuclear research program with two reactors. http://www.eia.doe.gov/emeu/cabs/norway.html

Research Reactors **Power Reactors**- 0
Operational: 2
Shut down: 0
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

2. Fissile Material Holdings

Radioactive waste disposal
Low- and intermediate-level waste: Himdalen storage facility for low- and intermediate-level radioactive waste has operated since 1998 under the ownership of the Directorate of Public Construction and Property (Statsbygg) and the operation of Institute for Energy Technology (IFE). Spent fuel from the Halden and Kjeller research reactors is stored on-site; no long-term storage and disposal plans have been made. http://www.nea.fr/html/rwm/bulletin/bulletin14.pdf

3. Nuclear Activities

Research Centers
Universities
Bergen University, Department of Physics
Oslo University, Department of Physics
Rogaland University, Stavanger

Nuclear Research Laboratories
Institutt for Energiteknikk, Kjeller
Scandpower A/S, Kjeller
Norwegian Geotechnical Inst., Oslo
OECD Halden Reactor Project
National Inst. of Radiation Hygiene, Oesteraas
IFE - Institute for Energy Technology
http://www.iaea.org/inis/ws/research_institutes/norway.html; http://www.radwaste.org/research.htm

Nuclear Cooperation
Russia: In 1999, the Norwegian Institute for Energy Technology reportedly purchased and imported at least 500 kg of Russian uranium for Norwegian research reactors.
http://www.bellona.no/en/international/russia/nuke_industry/co-operation/24171.html

In May 1998, Norway and Russia signed an agreement to jointly clean up the nuclear storage in Andreeva Bay. Norway will also play a major role in establishing a more permanent solution.
http://www.thebulletin.org/article.php?art_ofn=ma03reistad

Russia and USA: Trilateral cooperation on projects aimed at improving environmental monitoring in Russia, including:
- Developing interim solutions for transporting and storing spent fuel from decommissioned

Russian submarines.
- Mobile treatment of liquid radioactive waste from submarine decommissioning.
- Reviewing and implementing technology for solid radioactive waste volume reduction and its interim storage.
- Cooperating in radiation monitoring and control

http://www.ife.no/english/aktuelt/aktuelt_display.jsp?docId=1438

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
Comprehensive Nuclear Test-Ban Treaty, 15 July 1999
Nuclear Non-Proliferation Treaty, 5 February 1969
Outer Space Treaty, 1 July 1969
Sea Bed Treaty, 29 June 1971

Norway ratified the IAEA Additional Protocol 16 May 2000.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Nuclear Suppliers Group
Proliferation Security Initiative
Wassenaar Arrangement
Zangger Committee

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Disarmament: "In addition to a range of resolutions from the UN General Assembly and clear messages from governments and civil society, the UN Secretary General's high-level panel on Threats, Challenges and Change recently delivered a report that places great emphasis on disarmament matters. Norway was happy to see a number of clear recommendations from the Panel to restart nuclear disarmament, and to prevent further proliferation of weapons of mass destruction. One of the recommendations from the Panel was for this Conference to move without further delay to negotiate a verifiable fissile material cut-off treaty." - **Statement by Ambassador Wegger Chr. Strømmen to the Conference on Disarmament, 15 February 2005**
http://www.reachingcriticalwill.org/political/cd/speeches05/15FebNorway.pdf

Universality: "The lack of universality of the NPT continues to be of great concern, and we call for renewed efforts by all states to achieve universal adherence to the Treaty. It is crucial to engage states that are not parties to the NPT in constructive non-proliferation efforts. Security Council resolution 1540 reaffirms that proliferation of weapons of mass destruction is a threat to international peace and security and instructs Member States to do more to halt the spread of such weapons. Multilateral cooperation must be strengthened in order to support the implementation of the resolution."
- Statement to the 59th session of the General Assembly First Committee on Disarmament and International Security, 18 October 2004.
http://www.reachingcriticalwill.org/political/1com/1com04/thematic/Norway.PDF

Negative Security Assurances: "Negative security assurances by the five nuclear-weapons states to the non-nuclear weapon states can further strengthen the nuclear non-proliferation regime. This issue must be addressed in the process leading up to the Review Conference, as we all agreed in 2000."
- Statement by Ambassador Johan L. Lovald to the Third Preparatory Committee of the 2005 Review Conference, 27 April 2004. http://www.reachingcriticalwill.org/legal/npt/prepcom04/norway27.pdf

Poland

1. Location and capability of nuclear facilities

Poland relies mainly on coal fuel in meeting its energy needs. The Polish energy policy is centered around energy safety, increasing competitiveness of domestic enterprises, and the protection of environment from negative impacts of energy production processes.

High reliance on coal is projected to continue in the near future, although efforts are made on increasing the use of renewable energy sources in accordance with the EU policy on protection of the natural environment. Poland announced in December 2004 that it will construct its first nuclear power plant by the year 2023. http://www.poland.gov.pl/?document=477; http://www.paa.gov.pl/indexang.htm
http://www.wagingpeace.org/menu/resources/sunflower/2005/01_sunflower.htm#7e

Power Reactors- 0

Research Reactors
Operational: 1
Shut down: 2
Decommissioned: 2
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Uranium Mines
For some twenty years, starting in 1947, a systematic programme of uranium exploration and development was undertaken in the Lower Silesia region, under the direction of Soviet Union experts. Mines were developed at Kowary Podgórze, Radoniow and Kletno and all uranium extracted was consumed in the Soviet Union. http://www.worldenergy.org/wec-geis/edc/countries/Poland.asp

After World War II, uranium was mined in different parts of the Sudetic Mountains in Poland near the Czechoslovakian border, e.g. at Stronie Slaskie, Grzmiaca and Kowary.

Currently, Poland has no uranium production capability, no uranium industry nor any plans to undertake uranium production related activities. Uranium mining ended in the 1960s, since exploiting the ore deposits was no longer economically feasible.
http://www.antenna.nl/wise/index.html?http://www.antenna.nl/wise/373/3665.html

Mines Shut down
Kováry, Radoniów, Kopaniec, Kletno, Rudki, Radomice, Szklarska Poreba, Wojcieszyce, Okrzeszyn, Mniszków, Miedzianka, Radzimowice, Rochowice, Grzmiaca, Redziny.
http://www.antenna.nl/wise/uranium/uddeur.html#PL

2. Fissile Material Holdings

Radioactive waste disposal
Low- and intermediate-level waste: Low- and intermediate-level waste is collected, processed, solidified and prepared for disposal by Radioactive Waste Management Plant in Swierk. Afterwards the waste is disposed of in the National Radioactive Waste Repository in Rózan, a near surface type central repository site. http://www.paa.gov.pl/Nuclear-actvity-2003.htm; http://www.paa.gov.pl/National_report/report.pdf

High-level waste: Poland has identified several potential sites within its territory for a deep geological repository for high-level radioactive waste if they are to create a nuclear energy sector in the future.
http://www.paa.gov.pl/National_report/report.pdf

3. Nuclear Activities

Research Centers
Central Laboratory for Radiological Protection
Institute of Nuclear Chemistry & Technology
Institute of Nuclear Physics
Instytut Energii Atomowej - Swierk
Instytut Gospodarki Odpadami
http://www.radwaste.org/research.htm

Nuclear Cooperation
Czech Republic: Poland serves as a transit country for the transport of uranium to Czech Republic. In 2001, the Polish Atom Agency approved the transport of uranium en route from USA to Temelin nuclear plant in Czech Republic; the cargo transport was top-secret with no information given to the public regarding the associated risks.
http://www.ce-review.org/01/15/polandnews15.html

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
Antarctic Treaty, 8 June 1961
Comprehensive Nuclear Test-Ban Treaty, 25 May 1999
Convention on the Physical Protection of Nuclear Material, 8 February 1987
Nuclear Non-Proliferation Treaty, 12 June 1969
Outer Space Treaty, 30 January 1969
Sea Bed Treaty, 15 November 1971

Poland ratified the IAEA Additional Protocol 5 May 2000.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Nuclear Suppliers Group
Proliferation Security Initiative
Wassenaar Arrangement
Zangger Committee

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Disarmament: "Let me reiterate my Government's longstanding position that advancement of nuclear disarmament implies a successful mixture of unilateral, bilateral and multilateral measures which complement and strengthen one another. Furthermore, progress on and prospects for nuclear disarmament directly affect global peace and security. This is the reason for our belief that the role of multilateral forums on disarmament should not be diminished, although we highly appreciate unilateral and bilateral nuclear disarmament efforts by the Nuclear Weapon States. Accordingly, Poland attaches great importance to the outcome of the 2005 NPT Review Conference as a significant achievement and strongly hope that this event will contribute to disarmament efforts in other bodies and forums, especially this body." - **Statement by H.E. Professor Adam Daniel Rotfeld, Minister of Foreign Affairs, to the Conference on Disarmament, 17 March 2005.**
http://www.reachingcriticalwill.org/political/cd/speeches05/Mar15Poland.pdf

Proliferation and WMD: "The predictable threats caused in the past by the wars between countries have been replaced by indefinite and unpredictable threats caused by international terrorism, proliferation of WMD, and an increasing number of states in distress, whose governments are unable to exercise effective power over their territory and population.

"One of the most important issues, in the light of the particularly threatening nexus of terrorism and weapons of mass destruction, is the principle of the non-use of force." - **Statement by H.E. Mr. Wlodzimierz Cimoszewicz, Minister for Foreign Affairs to the 59th Session of the General Assembly, 2004 24 September 2004.** http://www.un.org/webcast/ga/59/statements/poleng040924.pdf

Romania

1. Location and capability of nuclear facilities

Romania had initially planned to build 5 nuclear power reactors at the Cernavoda site, but in the early 1990s decided to proceed only with the works on Unit 1 due to financial constraints. In 2000, however, the government decided that completion of Cernavoda-2 was a high priority and supplied part of the financing for it. Further finance was raised in 2002-03, including EUR 218 million from Canada. In 2004 a EUR 223.5 million Euratom loan was approved by the European Commission for completion of Unit 2, expected to come into commercial operation by 2007.

In 2002, efforts got under way to resume work on Cernavoda Unit 3, and in August 2004, the government advertised for companies interested in completing the unit. Financing is expected to be organized early in 2006 so that the unit comes on line in 2011. The main actor in nuclear power in Romania, Societatea Nationala Nuclearelectrica (SNN) plans to complete units 4 & 5 by 2020.
http://www.world-nuclear.org/info/inf93.htm

Power Reactors
Operational: 1
Shut down: 0
Decommissioned: 0
Under construction: 1
Planned: 3
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 2
Shut down: 1
Decommissioned: 1
Under construction: 0
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Uranium Mines

Mine	Location	Status
Crucea	Brasov	operating
Avram Iancu	Bihor	decommissioned
Dobrei South	Banat Mountains	decommissioned

2. Fissile Material Holdings

Separated Civil Plutonium- 2.2 tons (end 2002)
http://www.isis-online.org/global_stocks/civil_pu.html#table7

Radioactive waste disposal
Low- and intermediate-level waste: Existing facilities for waste disposal at the Cernavoda site are designed for 15 years of interim storage of low- and intermediate-level solid radioactive waste and ten years of spent fuel storage. Final disposal of the waste is envisaged to be sited at the Cernavoda area, and the commissioning is considered for 2005-2006.

High-level waste: A dry storage facility for spent fuel is being built, based on the Macstor system designed by AECL. The first module was commissioned in 2003. A radioactive waste treatment facility operates at Pitesti and preliminary investigations are under way regarding a deep geological repository. http://www.foratom.org/Content/Default.asp?PageID=712; http://www.world-nuclear.org/info/inf93.htm

3. Nuclear Activities

Research Centers
ICEMENERG - National Institute for Energy Research & Development
Institutul de Cercetari si Modernizari Energetice S.A.
NIPNE - National Institute for Physics & Nuclear Engineering

SCN / INR - Sucursala Cercetari Nucleare Pitesti / Institute for Nuclear Research
http://www.radwaste.org/research.htm

Nuclear Cooperation
Canada, Italy, US: The Cernavoda Project is based on technology transfer process from Canada, Italy and United States. The traditional Canadian and Italian partners are now focused on securing financing to complete the Cernavoda-2 project by 2005.

US: An agreement was signed in 1999 on nuclear cooperation between the United States and Romania under appropriate conditions and controls.
http://www.clintonfoundation.org/legacy/020999-presidential-letter-to-congress-on-romania.htm

Romania signed numerous bilateral agreements for nuclear cooperation, covering nuclear safety issues, early notification of nuclear accidents, and other applications of nuclear energy.
http://www.aneir-cpce.ro/sponsors/nuclearelectrica/international.htm

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
APM Convention, 30 November 2000
Biological Weapons Convention, 25 July 1979
Certain Conventional Weapons Convention, 26 July 1995
Comprehensive Nuclear Test-Ban Treaty, 5 October 1999
Chemical Weapons Convention, 15 February 1995
Nuclear Non-Proliferation Treaty, 4 February 1970
Open Skies Treaty, 5 June 1994
Outer Space Treaty, 9 April 1968
Sea Bed Treaty, 10 July 1972

Romania ratified the IAEA Additional Protocol 7 July 2000.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Nuclear Suppliers Group
Wassenaar Arrangement
Zangger Committee

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Non-proliferation: "Recent experience shows that, on their own, (treaties on WMD) cannot prevent determined proliferators from not complying with their international obligations...(a new) approach should comprise not only the goal of universal adherence to, and effective implementation of, conventions that prohibit WMD, but also robust and intrusive verification systems and reliable enforcement measures to effectively counter efforts by any country to illicitly acquire WMD."- **Statement by Ambassador Mihnea Motoc to the 58th session of the General Assembly First Committee on Disarmament and International Security, 7 October 2003.**
http://www.reachingcriticalwill.org/political/1com/1com03/genstate03/romania.pdf

Export controls: "In our view it is essential that all exporting states assume their responsibility and take appropriate measures to ensure that exports of sensitive materials, equipment and technologies are subject to strict control. Export controls must ensure that transfers are made only for peaceful purposes as required by the relevant conventions and treaties facilitating also international cooperation

and technological development." - **Statement by Ambassador Mihnea Motoc to the 58th session of the General Assembly First Committee on Disarmament and International Security, 7 October 2003.** http://www.reachingcriticalwill.org/political/1com/1com03/genstate03/romania.pdf

Compliance: "Accountable compliance and strict observation of existing obligations are basic prerequisites to prvoide a healthy climate conducive to negotiations for new collective security agreements or adaptation of the existing ones. Universal adherence has to be the standing objective related to multilateral agreements currently in force." - **Statement by Ioan Mircea Pascu, Minister of Defense, to the Conference on Disarmament, 7 March 2002.**
http://www.reachingcriticalwill.org/political/cd/speeches02/rom070302cd.pdf

Slovak Republic

1. Location and capability of nuclear facilities

In 2004, Four units at Bohunice and two units at Mochovce produced 55% of total electricity consumption in Slovakia. In December 2004, Slovak Economy Minister considered the completion of the third and fourth block of Mochovce.

In September 1999, the Slovak Government decided to shut down two units at Bohunice as part of the precondition for Slovak entry into the EU. These units should be shut down in 2006 and 2008 respectively.

In February 2005, a Vienna district court found Slovakia's Mochovce power plant northeast of Bratislava near the Austrian border did not meet international safety standards. The court ruled that the direction of the power plant should assure the safety at the plant "by taking the necessary measures to ensure that radioactive leaks do not occur again." The plant's owner said it would appeal, maintaining that the plant meets all Slovakia's legislative requirements as well as international safety standards. This is the first time in history a court in one country rules against a nuclear plant in another. http://www.ecology.at/nni/country.php?country=Slovakia; http://www.world-nuclear.org/info/inf91.htm; http://www.nuclear.com/welcome.html; http://www.alertnet.org/thenews/newsdesk/L1723290.htm

Power Reactors
Operational: 6
Shut down: 1
Under construction: 2
Planned: 2
http://www.iaea.or.at/programmes/a2/

2. Fissile Material Holdings

Civil Plutonium- 9.1 tons (end 2002)
http://www.isis-online.org/global_stocks/civil_pu.html#table7

Radioactive waste disposal
Low- and intermediate-level waste: There is a treatment and conditioning plant for low- and intermediate-level waste at the Bohunice plant, with repository at Mochovce.

High-level waste: A long-term goal of the Slovak authorities is the construction of a deep geological repository for high-level waste in the country. Site selection for this underground repository has commenced. http://www.world-nuclear.org/info/inf91.htm; http://www.ujd.gov.sk/files/anurep/vs2003.pdf

3. Nuclear Activities

Research Centers
VÚJE Trnava - Nuclear Power Plant Research Institute
http://www.radwaste.org/research.htm

Nuclear Cooperation
In addition to agreements with the IAEA and Euratom, Slovakia has developed bilateral cooperation agreements with other international institutions and organizations, including the following:

Italy: In February 2005 Slovakia's dominant power utility, Slovenské elektrárne (SE), was sold to Italy's largest electric utility company, Enel.

Ukraine: An agreement between the Slovak Republic and the Cabinet of Ministers of Ukraine on Early

Notification of Nuclear Accidents, on Exchange of Information and Cooperation in the Field of Nuclear Safety and Radiation Protection was signed in 1999. http://www.ujd.gov.sk/narspr/a4_7_7.htm

Japan: Key nuclear power personnel from the Slovak Republic have been trained in all aspects of nuclear safety in Japan. http://www.uic.com.au/nip12.htm

Germany: The REKON consortium (VÚJE and Siemens) for research and development cooperation programs with KfK and NUKEM.
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/CNPP_Webpage/countryprofiles/Slovakia/Slovakia2003.htm
http://www.ecology.at/nni/country.php?country=Slovakia

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
APM Convention, 25 February 1999
Biological Weapons Convention, 17 May 1993
Certain Conventional Weapons Convention, 28 May 1993
Comprehensive Nuclear Test-Ban Treaty, 3 March 1998
Chemical Weapons Convention, 27 October 1995
Nuclear Non-Proliferation Treaty, 1 January 1993
Open Skies Treaty, 21 December 1992
Outer Space Treaty, 1 January 1993
Sea Bed Treaty, 25 June 1993

Slovakia signed the IAEA Additional Protocol 27 September 1999 but has not yet ratified

Multilateral Groups
Conference on Disarmament
Nuclear Suppliers Group
Zangger Committee

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Fissile Material Cut-Off Treaty: "I can reiterate the priority of the Slovak Republic which is negotiating an FMCT, based on the once already approved mandate as a starting point. We believe that this mandate can be further elaborated in a way that would address all aspects of concern and interest of both individual member states and regional groups. We believe that this would be the most logical reopening of the game in the CD after a 7 years long break in negotiations." - **Statement by Ambassador Kalman Petocz to the Conference of Disarmament, 29 January 2004.**
http://www.reachingcriticalwill.org/political/cd/speeches04/Jan29Slovakia.pdf

Disarmament: "Slovakia also backs the toughening of international treaties that relate to disarmament and prevention of spreading WMDs, including international control mechanisms." - **Statement by H.E. Ivan Gašparovic to the 59th Session of the General Assembly, 21 September 2004**
http://www.un.org/webcast/ga/59/statements/slovaeng040921.pdf

Spain

1. Location and capability of nuclear facilities

Spain relies primarily on coal and hydroelectric power in meeting its energy needs. Spain developed nuclear energy in the early 1950s; currently nuclear energy contributes nearly 30% of total energy production. Nuclear power reactors in the country required 1,629 tons uranium in 2004. The Ministry of Economy and the Nuclear Safety Council are the main governmental authorities responsible for nuclear energy matters. http://www.world-nuclear.org/info/reactors.htm
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/CNPP_Webpage/countryprofiles/Spain/Spain2003.htm

Power Reactors
Operational: 10
Shut down: 1
Decommissioned:
Planned: 0
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 0
Shut down: 1
Decommissioned: 3
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Uranium Mines
La Haba (Badajoz)- restoration ongoing
Saelices el Chico (Salamanca)- closed
http://www.antenna.nl/wise/uranium/uddes.html

Fuel Fabrication
Empresa Nacional del Uranio, S.A. (Enusa) owns the fuel fabrication plant Juzbado, which produces nuclear fuel for light water reactors, and has a capacity to produce 300 tons of enriched uranium per year. It also manufactures uranium oxide fuel for water power stations as well as gadolinium oxide fuel rods. http://www.foronuclear.org/

2. Fissile Material Holdings

Unirradiated Civil Plutonium
In country: 0.1 ton
In other countries: 0.1-1 ton
Total: 0.2-1.1 tons
http://www.isis-online.org/global_stocks/separated_civil_pu.html

Separated Civil Plutonium
end 2002: 0.2-1 ton
2010-2020 (projected): 1 ton

Radioactive waste disposal
Low- and intermediate-level waste: Low- and intermediate-level waste is stored at the El Cabril disposal facility in Córdoba, operational since 1992. In 2002, a temporary dry storage facility was started at the Trillo nuclear power plant, which houses the spent fuel in metallic casks for transport and temporary storage.
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/CNPP_Webpage/countryprofiles/Spain/Spain2003.htm

High-level waste: The government is scheduled to make a decision in 2010 about the technology to be used for the final management of spent fuel. In the meantime, the government made decisions to extend the on-site storage capacity of nuclear power plants. http://www.cowam.com/article.php3?id_article=34

3. Nuclear Activities

Research Centers
CIEMAT: Research and Development Centre
UNESA: Associacion Espanola de la Industria Electrica
Asociación de la Industria Navarra

COFIS: Colegio Oficial de Fisicos
Consejo Superior de Investigaciones Cientí
CSIC: Inst of Nuclear Fusion
RedIRIS, Spanish National Research Network
Laboratori de Radioactivitat Ambiental
http://www.radwaste.org/research.htm

Nuclear Cooperation
Spain participates in the programs of the EU and collaborates with other EU members, including the R&D Framework Program, Community Action Plan, PHARE, TACIS, and Chernobyl Shelter Implementation Plan. Spain is a member of Nuclear Energy Agency (NEA/OECD) and International Atomic Energy Agency (IAEA).
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/CNPP_Webpage/countryprofiles/Spain/Spain2003.htm

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
APM Convention 19 January 1999
Biological Weapons Convention 20 June 1979
Certain Conventional Weapons Convention 29 December 1993
Comprehensive Nuclear Test-Ban Treaty, 31 July 1998
Chemical Weapons Convention 13 January 1993
Nuclear Non-Proliferation Treaty, 5 November 1987
Outer Space Treaty, 27 November 1968
Sea Bed Treaty, 18 May 1972

Spain ratified the IAEA Additional Protocol 30 April 2004.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Nuclear Suppliers Group
Proliferation Security Initiative
Wassenaar Arrangement
Zangger Committee

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Security Council Resolution 1540: "Disarmament and non-proliferation are closely associated concepts in international practice. Clearly, disarmament can help prevent non-state actors from acquiring weapons of mass destruction, but this resolution is not going to assure that the States that possess WMD will accelerate the fulfillment of their disarmament obligations derived from international treaties, nor that the parties to these Treaties will adhere to them." - **Statement by Spain in the Open Debate of the Security Council on the draft resolution on non-state actors and weapons of mass destruction (SC resolution 1540), April 22, 2004**. (*unofficial translation*)
http://www.reachingcriticalwill.org/political/SC/SC_WMD_Spain.pdf

Nuclear Weapon-Free Zones: "It is worth restating that my country has always considered Nuclear-Weapon-Free Zones as an important contribution to strengthening international peace and security and that it, therefore, fully shares the goals set by the Treaty of Pelindaba... Nevertheless, Spain, as it stated immediately after the adoption by consensus of this resolution in 1997, 1999 and 2001, does not consider itself bound by the said consensus as far as operative paragraph 3 (to ensure a nuclear-free

Sweden

1. Location and capability of nuclear facilities

Sweden's nuclear power reactors provide approximately 50% of its electricity. In 2004, the reactors required 1,536 tons of uranium. The first nuclear power was generated in 1972. Six reactors entered commercial service in the 1970s and six in the 1980s. The reactors are at four sites around the southern coast. In February 2005, the Centre Party, one of the country's opposition parties, changed its long-held position supporting Sweden's nuclear phase-out policy, joining the rest of the opposition non-socialist coalition, calling for the country's currently operating reactors to be able to remain open as long as possible. http://www.world-nuclear.org/info/reactors.htm
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/CNPP_Webpage/countryprofiles/Sweden/Sweden2003.htm
http://www.world-nuclear.org/nb/nb05/latestnews.htm

Power Reactors
Operational: 11
Shut down: 2
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 2
Shut down: 1
Decommissioned: 1
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Uranium Mines
Ranstad (Västergötland)- operating

2. Fissile Material Holdings

Unirradiated Civil Plutonium
In country: 0
In other countries: 0.833 tons
Total: 0.833 tons
http://www.isis-online.org/global_stocks/separated_civil_pu.html

Separated Civil Plutonium
end 2002: 0.83 tons
2010-2020 (projected): 0

Radioactive waste disposal
Low-level waste: Sweden has a centralized spent fuel storage near Oskarshamn, and will encapsulate spent fuel there for geological disposal by 2015. An underground repository for low- and intermediate-level waste is operating near the Forsmark nuclear power plant since 1988. This repository consists of four rock caverns for different types of wastes.

Intermediate-level waste: The Forsmark plant has an underground rock silo for the most active components of intermediate-level waste. Spent fuel is shipped by sea to the interim store situated by the reactor site at Oskarshamn.

High-level waste: The CLAB interim repository for spent fuel handles high-level waste. Investigations for a final repository are ongoing. The locations in consideration are Östhammar or Oskarshamn, and a repository should be operational by the year 2015.
http://www.enviros.com/vrepository/not_subscribed/country/sweden/index.cfm
http://www.world-nuclear.org/info/printable_information_papers/inf42print.htm

3. Nuclear Activities

Research Centers
Äspö Hard Rock Facility
Äspö Modelling Task Force
KTH Dept of Nuclear Power Safety

NFL - Neutronforskningslaboratoriet i Studsvik
NUTEK - National Board for Industrial & Technical Development
Resursförmedlingen Norden
SLU Department of Radioecology
SKC - Svenskt kärntekniskt centrum / Swedish Centre for Nuclear Technology
TFR - Teknikvetenskapliga Forskningsrådet
http://www.radwaste.org/research.htm

Nuclear Cooperation
The Swedish Nuclear Fuel and Waste Management Company (SKB) has a broad network of international contacts and is party to formal collaboration agreements with the following organizations:

EU: Euratom
Finland: Teollisuuden Voima, Imatran Voima
France: Commissariat à l'Energie Atomique (CEA), Agence Nationale pour la Gestion des Déchets Radioactifs (ANDRA)
Japan: Japan Nuclear Fuel Limited (JNFL)
Canada: Atomic Energy of Canada Limited (AECL)
Switzerland: Nagra
USA: US Department of Energy (DoE)

The following organizations have signed participation agreements in the Aspö Hard Rock Laboratory project:

Canada: Atomic Energy of Canada, Limited (AECL)
Japan: Power Reactor & Nuclear Fuel Development Corporation (PNC) and Central Research Institute of Electric Power Industry (CRIEPI),
France: Agence Nationale pour la Gestion des Déchets Radioactifs (ANDRA)
Finland: Teollisuuden Voima (TVO)
UK: Nirex
Switzerland: Nagra

Russia: In February 2005, the Swedish government allocated resources for developing nuclear security in Russia during 2005, focusing on nuclear reactors, nuclear waste, radiation protection and readiness to emergency situations.
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/CNPP_Webpage/countryprofiles/Sweden/Sweden2003.htm
http://www.energy-net.org/is/en/nuke/POL/INT/NEWS/05227242.TXT

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
APM Convention, 30 November 1998
Biological Weapons Convention, 5 February 1976
Certain Conventional Weapons Convention, 7 July 1982
Comprehensive Nuclear Test-Ban Treaty, 2 December 1998
Chemical Weapons Convention, 17 June 1993
Nuclear Non-Proliferation Treaty, 9 January 1970
Open Skies Treaty, 28 June 2002
Outer Space Treaty, 11 October 1967
Sea Bed Treaty, 28 April 1972

Sweden ratified the IAEA Additional Protocol 30 April 2004.

Multilateral Groups

Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Disarmament and non-proliferation: "...weapons of mass destruction constitute one of the main threats to international peace and security. The threat of terrorism in connection with proliferation of such weapons is real.

"The need for strong policies in disarmament and non-proliferation is acute. The nuclear weapon states must show real progress towards disarmament. Efforts to combat proliferation must be strengthened. Compliance with existing treaties leaves much to be desired, and must improve."
- **Statement by H.E. Mr. Göran Persson, Prime Minister, to the General Debate of the 59th Session of the General Assembly of the United Nations, 21 September 2004.**
http://www.un.org/webcast/ga/59/statements/sweeng040921.pdf

Nuclear Fuel Cycle: "Sweden believes that there are a number of elements to consider when developing measures to control the fuel cycle.

- The approach should be broad-based, aiming at strengthening multinational control and limiting the existing global inventory of material directly usable in nuclear weapons and the capacity to produce the same.

- A non-discriminatory approach to assuring supply of nuclear fuel and material for peaceful purposes should be developed. This approach should aim at maintaining enrichment and reprocessing capacity globally at a level sufficient to meet international demand and ensure commercial competitiveness.

- Another element should be to halt the production of plutonium and highly enriched uranium for nuclear weapons through a Fissile Material Cut-off Treaty.

- Existing frameworks for the disposal of excess plutonium and highly enriched uranium should be maintained and expanded.

- A central element would be the Additional Protocol, as the new verification standard, in order to enhance transparency and to facilitate a non-discriminatory system for assured supply of nuclear material for legitimate civil use." - **Statement by Counsellor Mr. Jörgen Persson to the Third Session of the Preparatory Committee for the 2005 NPT Review Conference, 29-30 April 2004.**
http://www.reachingcriticalwill.org/legal/npt/prepcom04/SwedenCL3.pdf

Negative Security Assurances: "It is important that the Nuclear Weapon States continue to uphold and reiterate their commitments with regards to security assurances for all non-nuclear weapon States parties to the NPT." - **Statement by H.E. Mrs. Elisabet Borsiin Bonnier on behalf of the New Agenda Coalition to the First Committee on Disarmament and International Security, 18 October 2004.** http://www.reachingcriticalwill.org/political/1com/1com04/thematic/NACdist.pdf

Switzerland

1. Location and capability of nuclear facilities

Some 40% of the Swiss energy is generated from nuclear power; reactors required 596 tons of uranium in 2004.

In a 2003 referendum, the Swiss voters rejected two initiatives on a new 10-year moratorium on the construction of new nuclear power stations, "Moratorium plus" and a "Sortir du nucléaire", a nuclear phase-out within 30 years. Thus, there will be no nuclear phase-out plan, but there are no plans for expansion either. The alternative law to the moratoriums doesn't show any sign in favor of the construction of new nuclear units.
http://www.world-nuclear.org/info/inf86.htm
http://www.wise-paris.org/index.html?/english/ournews/year_2003/ournews030612.html&/english/frame/menu.html&/english/frame/band.html

Power Reactors
Operational: 5
Shut down: 0
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 3
Shut down: 2
Decommissioned: 1
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

2. Fissile Material Holdings

Unirradiated Civil Plutonium
In country: 0.8 tons
In other countries: 0-2 tons
Three tons of plutonium in spent fuel or in separated form are located at foreign reprocessing plants, according to Switzerland's declaration to the IAEA. At least one ton of this plutonium is estimated to remain in spent fuel, based on 2001 reprocessing schedules for Thorp and La Hague.

Separated Civil Plutonium
end 2002: 0.8-2.8 tons
2010-2020 (projected): 0
http://www.isis-online.org/global_stocks/separated_civil_pu.html

Radioactive waste disposal
Low- and intermediate-level waste: Two smaller interim storage sites for low- and intermediate-level wastes have been operating since 1993: Zwibez at Beznau and BZL at the Paul Scherrer Institute at Villigen. Plans are to develop a permanent low-level radioactive waste facility. The process is expected to start after the new legislation on nuclear energy enters into force and a site selection procedure is developed. http://www.ocrwm.doe.gov/factsheets/doeymp0417.shtml; http://www.uic.com.au/nip86.htm
http://www.nea.fr/html/rwm/rf/switzerland.pdf

High-level waste: In 2001, Zwilag, an industry-owned organization, built Switzerland's centralized interim storage facility for spent nuclear fuel, high-level radioactive waste and conditioning low-level radioactive waste at Wuerenlingen.
http://www.ocrwm.doe.gov/factsheets/doeymp0417.shtml

A permanent repository for the high-level and the long-lived intermediate level waste is planned. Two potential host rock formations, both in northern Switzerland, are being investigated for that purpose. The federal government is expected to take a decision around 2006 on the further procedure for the management of these wastes. http://www.nea.fr/html/rwm/rf/switzerland.pdf

3. Nuclear Activities

Research Centers
ARAMIS: Swiss Research Information System
CERN: European Laboratory for Particle Physics
CUEPE: Centre Universitaire d'Étude des Problèmes de l'Énergie
EAWAG: Eidgenössische Anstalt für Wasserversorgung Abwasserreinigung und Gewässerschutz
EMPA: Eidgenössische Materialprüfungs und Forschungsanstalt
Environmental Radioactivity Centre
Grimsel Test Site
IGA: Institut de Génie Atomique
ISOLDE: Isotope Mass Separator
KBF: Coordination Office for Swiss Participation in International Research Projects
LES Waste Management Laboratory
PSI: Paul Scherrer Institute
RQF: Institut für Raum-Quanten-Forschung
SNF: Swiss National Science Foundation
Vision: Science & Innovation Made in Switzerland.
http://www.iaea.org/inis/ws/countries/switzerland_research_institutes.html#410
http://www.radwaste.org/research.htm

Nuclear Cooperation
France, Germany: Switzerland has well established bilateral relations with French and German authorities in the nuclear field. Within this framework, French and Swiss regulatory authorities have been collaborating in common inspections of their nuclear installations.

The Swiss authorities have been following the evolution of the international nuclear projects, in particular the MEGAPIE project, within the Fifth European Framework program, and have interest in joining the Generation IV Initiative.
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/CNPP_Webpage/PDF/2002/Documents/Documents/Switzerland%202002.pdf

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
APM Convention, 24 March 1998
Biological Weapons Convention, 4 May 1976
Certain Conventional Weapons Convention, 20 August 1982
Comprehensive Nuclear Test-Ban Treaty, 1 October 1999
Chemical Weapons Convention, 10 March 1995
Nuclear Non-Proliferation Treaty, 9 March 1977
Outer Space Treaty, 18 December 1969
Sea Bed Treaty, 4 May 1976

Switzerland ratified the IAEA Additional Protocol 1 February 2005.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Nuclear Suppliers Group
Wassenaar Arrangement
Zangger Committee

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Disarmament and vertical proliferation: "Nuclear Weapon States must multiply their efforts to reduce and eliminate these weapons completely (including the) implementation of measures which gradually reduce the role of the nuclear weapons in their strategies and military doctrines...the Nuclear Weapon States must cease their research and the development of new generations of nuclear weapons immediately." - **Statement by Ambassador Christian Faessler to the 59th session of the General Assembly First Committee on Disarmament and International Security, 18 October 2004.**
http://www.reachingcriticalwill.org/political/1com/1com04/thematic/Switzerland.PDF

Universality: "The second most important measure is to increase our efforts to achieve the universalization of all agreements and treaties in the field of weapons of mass destruction. We call on those countries who have not yet done so to ratify without delay the Treaty on Nuclear Non-proliferation, the Comprehensive Nuclear Test-Ban Treaty, the Chemical Weapons Convention and the Convention banning biological weapons."- **Statement by Ambassador Christian Faessler to the 59th session of the General Assembly First Committee on Disarmament and International Security, 5 October 2004.** http://www.reachingcriticalwill.org/political/1com/1com04/statements/Switzerland.pdf

Verification: "The recent discovery of a dangerous black market in nuclear technology does by no means diminish the importance of the existing system of safeguards of the IAEA. It is this system indeed which makes it possible to verify the peaceful nature of nuclear programmes, which is an essential aspect of nuclear non- proliferation. My country therefore calls on all States which have not yet done so to conclude without further delay full-scope agreements with the IAEA." - **Statement by Mr. Andreas Friedrich to the Third Session of the Preparatory Committee to the 2005 NPT Review Conference, 3 March 2004.** http://www.reachingcriticalwill.org/legal/npt/prepcom04/switzerlandCL2.pdf

Ukraine

1. Location and capability of nuclear facilities

A large share of the primary energy supply in Ukraine comes from the country's uranium and coal resources. The remainder is oil and gas, mostly imported from Russia. In 2003, some 51% of the country's energy came from nuclear power, with a uranium requirement of 1,512 tons.
http://www.world-nuclear.org/info/reactors.htm
http://www.world-nuclear.org/info/inf46.htm

On April 25th -26th, 1986 an out-of-control chain reaction at the Chernobyl nuclear power plant, located 80 miles north of Kiev, created explosions and a fireball which blew off the reactor's heavy steel and concrete lid. The meltdown of the Chernobyl plant was the worst accident in the history of "peaceful" nuclear technology.

31 people died and 209 on-site were treated for acute radiation poisoning and large areas of Belarus, Ukraine, Russia and to some extent Scandinavia and other parts of Europe were contaminated in varying degrees.

In 1999, an opinion poll demonstrated that only 9% of the Ukrainian population was in favor of the completion of additional nuclear reactors. A large percentage (23.6%) of people favored the construction of a gas power plant after the closure of the Chernobyl nuclear power plant.
http://www.antenna.nl/wise/index.html?http://www.antenna.nl/wise/512/brief.html

Power Reactors
Operational: 15
Shut down: 4
Decommissioned: 2
Planned: 1
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 1
Shut down: 2
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Uranium Mines

Mine	Location	Status
Ingul'skii	Kirovgrad	operating
Novaya	Kirovgrad	closed
Olkhovskaya	Kirovgrad	reclamation complete
Severinskoye	Kirovgrad	operating
Vatutinskii	Kirovgrad	operating
Zheltiye Vody	Kirovgrad	operating

2. Fissile Material Holdings

Separated Civil Plutonium
end 2002: 51 tons
http://www.isis-online.org/global_stocks/civil_pu.html#table7

Radioactive waste disposal
Intermediate- and high-level waste: At Zaporozhe, a long-term dry storage facility for spent fuel has operated since 2001, but other spent fuel is sent to Russia for storage. From 2011, high-level wastes from reprocessing Ukrainian fuel will be returned from Russia to Ukraine. Spent fuel from decommissioned reactors at Chernobyl is stored on-site, and a new dry storage facility is under construction there. Preliminary investigations have indicated sites for a deep geological repository for high-level waste

and intermediate-level waste, including all those arising from Chernobyl decommissioning and clean-up.
http://www.world-nuclear.org/info/printable_information_papers/inf46print.htm

3. Nuclear Activities

Research Centers
Kiev Institute for Nuclear Research
Kharkiv Institute of Physics and Technology
Sevastopol Institute of Nuclear Energy and Industry
Chernobyl Center on Problems of Nuclear Safety, Radioactive Waste, and Radioecology
http://www.nti.org/db/nisprofs/ukraine/reactors/ff_ukrea.htm; http://www.radwaste.org/research.htm

Nuclear Cooperation
US: In October 2004, a Memorandum of Understanding on safety and security of radiation sources in Ukraine was signed. The US will provide finances to help Ukraine develop an existing register to track radioactive materials throughout the country in order to prevent terrorists from acquiring dangerous materials for possible use in so-called dirty bombs.
http://www.nti.org/db/nisprofs/ukraine/reactors/power/wastedev.htm

Russia, Kazakhstan: In 2002, the government of Ukraine approved a trilateral agreement with Russia and Kazakhstan to start development of a joint venture to manufacture nuclear fuel. Approximately 90% of nuclear fuel resources are supplied by the Russian Federation and Kazakhstan.
http://www.bellona.no/en/international/russia/nuke_industry/co-operation/channel15203n25s25_.html
http://www.world-nuclear.org/sym/1998/chernov.htm

G7: In 1995, Ukraine signed an agreement with the G7 countries to close the last reactor in Chernobyl in 2000. In exchange, Ukraine would receive financial and technical support for completing two nuclear generating units, Khmelnitskiy 2 and Rovno 4, to provide replacement electricity. Both reactors were completed by 2004, financed by Ukraine rather than international grants as expected on the basis of Chernobyl's closure. http://www.nei.org/index.asp?catnum=3&catid=627
http://www.world-nuclear.org/info/chernobyl/inf07.htm

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
ABM Treaty, MoU on Successor States to the ABM Treaty, 11 January 2001
APM Convention, signed 24 February 1999 (not ratified)
Biological Weapons Convention, 26 March 1975
Certain Conventional Weapons Convention, 23 June 1982
Chemical Weapons Convention, 16 October 1998
Comprehensive Nuclear Test-Ban Treaty, 23 February 2001
Nuclear Non-Proliferation Treaty, 5 December 1994
Open Skies Treaty, 20 April 2000
Outer Space Treaty, 31 October 1967
Sea Bed Treaty, 3 September 1971
START I, signed 31 July 1991

Ukraine signed the IAEA Additional Protocol 15 August 2000 but as of yet has not ratified.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation

Missile Technology Control Regime
Nuclear Suppliers Group
Wassenaar Arrangement
Zangger Committee

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Disarmament: "The role of the UN in the field of non-proliferation and disarmament should be also strengthened. This year Ukraine will mark the 10th anniversary of its accession to the Treaty on Non-Proliferation of Nuclear Weapons (NPT). The landmark decision to eliminate the third largest nuclear arsenal and relinquish nuclear capability has significantly enhanced international non-proliferation regime and global security. We hope that this positive example will be followed by countries, which entertain ideas of protecting their security through the access to nuclear weapons." - **Statement by H.E. Mr. Kostyantyn Gryshchenko, Minister for Foreign Affairs, to the General Debate of the 59th session of the UN General Assembly, 27 September 2004.**
http://www.un.org/webcast/ga/59/statements/ukreng040927.pdf

Universality: "Ukraine has repeatedly stated that the NPT is the cornerstone of the global non-proliferation regime and the essential foundation for the pursuit of nuclear disarmament under Article VI of the Treaty. We continue to attach great importance to achieving the universality of and universal compliance with the NPT." - **Statement by H.E. Mr. Borys Tarasyuk, Minister of Foreign Affairs, to the Conference on Disarmament, 15 March 2005.**
http://www.reachingcriticalwill.org/political/cd/speeches05/Mar15Ukraine.pdf

Negative Security Assurances: "Ukraine believes that legally binding security assurances by the Nuclear Weapon States to the Non-Nuclear Weapon States parties to the NPT will significantly strengthen the nuclear non-proliferation regime by eliminating plausible incentives for pursuing nuclear capabilities. In this connection encouraging also is the reaffirmation by many states of their support for the commencement of FMCT negotiations." - **Statement by Mr. Anatoliy Scherba, Minister of Foreign Affairs, to the First Committee of the 59th Session of the United Nations General Assembly, 8 October 2004** http://www.reachingcriticalwill.org/political/1com/1com04/statements/ukraine.pdf

Australia

1. Location and capability of nuclear facilities

While Australia does not use uranium as an energy source, it does provide 28% of the world's uranium supply for nuclear energy. Fossil fuels are Australia's major energy sources: oil, black coal, natural gas and brown coal. Renewable sources currently supply 5%, which could grow significantly together with natural gas, wind and solar energy, with government support.
http://www.dpmc.gov.au/publications/energy_future/chapter1/2_sector.htm; http://www.energybulletin.net/1964.html

Research Reactors **Power Reactors**- 0
Operational: 1 (to be closed by 2006)
Shut down: 1
Decommissioned: 1
Under construction: 1 (to be opened in 2006)
http://www.iaea.or.at/worldatom/rrdb/; http://www.arpansa.gov.au/is_waste.htm ; http://www.uic.com.au/nip55.htm

Uranium Mines

Mine	Location	Status
Beverley mines	South Australia	operating
Honeymoon	South Australia	license pending
Jabiluka	Northern Territories	halted
Mary Kathleen	Queensland	closed
Moline	Northern Territories	closed
Nabarlek	Queensland	closed
Olympic Dam	South Australia	operating
Radium Hill	South Australia	closed
Ranger mine	Northern Territories	operating
Rockhole	Northern Territories	closed
Rum Jungle	Northern Territories	closed

Uranium ores have been known in Australia since the 1890s; following requests from the British and US governments, systematic exploration for uranium began in 1944. During that time, uranium was sold primarily for weapons programs.

The development of civil nuclear power stimulated a second wave of exploration activity in the late 1960s, and most of Australia's major ore bodies were discovered as a result. This phase was marked by the involvement of major companies with large budgets and using advanced exploration techniques and equipment. http://www.uic.com.au/explor.htm

Australia's uranium is sold only for electrical power generation purposes. It exports uranium to 11 countries including the US, Japan, South Korea, and several European states.

Australia's uranium reserves are the world's largest, with 28% of the world's total. Production and exports have recently averaged 9500 tons of uranium oxide per year. With 19% of the world production, Australia is the second largest producer of uranium from mines though only three mines are currently operating. http://www.world-nuclear.org/info/inf48.htm; http://www.uic.com.au/pmine.htm
http://www.uic.com.au/nip01.htm

2. Fissile Material Holdings

Radioactive waste disposal
Each state and territory is responsible for the management of radioactive waste generated by govern-

ment agencies, individuals and organizations within their jurisdiction. The government has made clear that they reject any proposal to import high-level radioactive waste from overseas for storage in Australia. The Woomera Prohibited Area in the north region of South Australia was selected as the preferred location for the low level waste repository, though it was rejected by the South Australian government in 2004.
http://www.arpansa.gov.au/is_waste.htm; http://www.world-nuclear.org/waste/report2002/chapter2.htm#lowwaste

3. Nuclear Activities

Research Centers
ANSTO - Australian Nuclear Science & Technology Organization
Australian Radiation Protection and Nuclear Safety Agency
Australian Synchrotron
CSIRO - Commonwealth Scientific & Industrial Research Organization.
http://www.radwaste.org/research.htm

Nuclear Cooperation
Australia has 18 bilateral safeguards Agreements covering 35 countries and exports uranium to the USA, Japan, South Korea, and the European Union (Spain, France, UK, Sweden, Germany, Belgium and Finland). http://www.dfat.gov.au/security/nuclear_safeguards.html

China: Australia is a major arms supplier to China, and is negotiating to become a primary source of uranium for the growing Chinese network of nuclear power plants. The deal is expected to be signed before April 2006. http://www.washtimes.com/world/20050401-112015-4196r.htm

IAEA: ANSTO signed an agreement in May 2002 with the IAEA to accredit the Australian organization with IAEA's Network of Analytical Laboratories.
http://www.foreignminister.gov.au/releases/2002/fa065j_02.html

Argentina: A Nuclear Cooperation and Safeguards Agreement was signed in 2001 covering cooperation on research reactors, nuclear medicine, fuel and radioactive wastes, nuclear safety and regulation, and technology for safeguards and physical protection.

ANSTO and the Argentine company INVAP signed a contract in 2000 for the construction of a replacement research reactor at Lucas Heights in Sydney.
http://www.dfat.gov.au/security/ncs_agreement_aus_arg.html

Pacific: Australia cooperates closely with the Pacific Nuclear Association, and will host the 15th Pacific Basin Nuclear Conference in Sydney 2006. http://www.nuclearaustralia.org.au

US: In January 2001, Australia signed a 10-year deal with the US to allow Australia to send spent nuclear fuel rods from Sydney's Lucas Heights reactor to the US to be stored by US authorities.

A private company, Silex Systems Ltd., is developing methods for enriching uranium using lasers. The project operates under an Australian / US bilateral agreement which facilitated technology and equipment transfers between the two countries. In February 2005 Silex Systems Ltd. stated that it plans to construct a laser enrichment pilot plant in the United States.
http://www.greenpeace.org.au/frontpage/pdf/silex_report.pdf

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
APM Convention, 14 January 1999
Biological Weapons Convention, 5 October 1977

Certain Conventional Weapons Convention, 29 September 1983
Comprehensive Nuclear Test-Ban Treaty, 9 July 1998
Chemical Weapons Convention, 6 May 1994
Nuclear Non-Proliferation Treaty, 23 January 1973
Outer Space Treaty, 10 October 1967
Sea Bed Treaty, 23 January 1973
Treaty of Rarotonga, 11 December 1986

Australia ratified the IAEA Additional Protocol 12 December 1997.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Nuclear Suppliers Group
Proliferation Security Initiative
Wassenaar Arrangement
Zangger Committee

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Fissile Material Cut-Off Treaty: "Australia's position is that to be credible and effective the FMCT should include appropriate verification arrangements. But as with any verification system it will be essential that the FMCT verification provides confidence that the Treaty commitments are being complied with... The form of FMCT verification would be among the matters to be negotiated but Australia has advanced the 'focused approach' for FMCT verification which we consider could be both effective and cost-efficient. Under the 'focused approach,' verification measures would apply to fissile material-i.e. highly enriched uranium and separated plutonium- produced after the Treaty's entry-into-force, and to the facilities that produce fissile material, i.e. enrichment and reprocessing plants." - **Statement by Ambassador Mr. Michael Smith to the Conference on Disarmament, 12 August 2004.**
http://www.reachingcriticalwill.org/political/cd/speeches04/12AugustAustralia.pdf

Additional Protocol: "We are committed to working with others to address serious challenges faced by the Treaty. (Recent e)vents...have confirmed that existing NPT verification is insufficient to stop determined proliferators. There should be no doubt that the Additional Protocol together with a comprehensive safeguards agreement is the NPT safeguards verification standard required for NPT non-nuclear weapon states. NPT parties should at next year's Review Conference take a decision to this effect." - **Statement by Ambassador Mr. Michael Smith to the 59th session of the General Assembly First Committee on Disarmament and International Security, 18 October 2004.**
http://www.reachingcriticalwill.org/political/1com/1com04/thematic/Australia.PDF

Practical steps: "...steady progress on nuclear disarmament is central to preserving the political strength and vitality of the Treaty, and remains a key Australian policy objective. While acknowledging the progress made on nuclear disarmament Australia renews its expectation on further nuclear disarmament steps by the nuclear weapon states. We remain firmly committed to practical progress on nuclear disarmament, this being the objective of the 13 disarmament steps from the 2000 Review Conference." - **Statement by Dr. Geoffrey Shawn to the Third Preparatory Committee of the 2005 Review Conference, 29 April 2004.** http://www.reachingcriticalwill.org/legal/npt/prepcom04/australiaCL1.pdf

Bangladesh

1. Location and capability of nuclear facilities

Since 1965, Bangladesh has planned to build a nuclear reactor at Rooppur to deliver the country from constant shortcomings of electricity. First, Westinghouse was to build it, later Canada, the Soviet Union, France and even Saudi Arabia have been involved in the reactor project. In 1997, the World Bank refused to finance the project. The IAEA is willing to provide consultancy in the installation and operation of a nuclear reactor at the Rooppur plant, scheduled to commence operation in 2009.
http://www.antenna.nl/wise/index.html?http://www.antenna.nl/wise/499-500/countr.html
http://www.world-nuclear.org/nb/nb01/nb0134.htm
http://www.worldenergy.org/wec-geis/publications/reports/ser/nuclear/nuclear.asp

Research Reactors **Power Reactors**- 0
Operational: 1
http://www.iaea.or.at/worldatom/rrdb/

2. Nuclear Activities

Research Centers
AECD: Atomic Energy Centre
BAERE: Bangladesh's Atomic Energy Research Establishment
INM: Nuclear Medicine Institute
NMC: Nuclear Medical Centers
BSEC: Beach Sand Exploration Centers
Radiation Testing Laboratory, Chittagong
Rooppur Plant at Pabna
AERE: Atomic Energy Research Establishment
http://www.rca.iaea.org/BGD/BAEC%20Latest%20WelCome%20Page%20.htm

Nuclear Cooperation
United States: In November 2000, Bangladesh signed an agreement with the US for cooperation on nuclear power. Under the agreement, Bangladesh is to receive technical assistance for its planned Rooppur nuclear plant. http://archive.wn.com/2004/01/30/1400/bangladeshpower/

China: Bangladesh is expected to sign an agreement with China in April 2005 on the use of nuclear energy, aimed at strengthening the country's capacity to explore and exploit nuclear minerals available in coastal and hilly areas. The agreement would also pave the way for developing nuclear reactors for power generation. http://www.dailyexcelsior.com/web1/05mar21/inter.htm#4

IAEA: The Technical Co-operation Department of the IAEA completed several projects in Bangladesh during 2002, i.e. training in neutron and thermal analyses on the TRIGA reactor, training on radioactive waste management, and training on clinical applications of gamma camera imaging.
http://www-tc.iaea.org/tcweb/achievements/Achievements2002.pdf

3. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
APM Convention, 6 September 2000
Biological Weapons Convention, 11 March 1985
Certain Conventional Weapons Convention, 6 September 2000
Comprehensive Nuclear Test-Ban Treaty, 8 March 2000
Chemical Weapons Convention, 25 April 1997
Nuclear Non-Proliferation Treaty, 31 August 1979
Outer Space Treaty, 14 January 1986

Bangladesh ratified the IAEA Additional Protocol 30 March 2001.

Multilateral Groups
Conference on Disarmament

4. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Fissile Material Treaty: "The 1995 NPT Review Conference had called for an early commencement and conclusion of negotiations on FMCT which constitutes an important step forward in the non-proliferation context. Bangladesh supports the negotiating mandate for a non-discriminatory, multilateral and international and effectively verifiable treaty banning the production of fissile material for nuclear weapons and other explosive devices. Negotiations should extend to existing stockpiles without which any such treaty will be incomplete." -**Statement by H.E. Mr. Reaz Rahman, Minister of Foreign Affairs, to the Conference on Disarmament, 16 March 2004.**
http://www.reachingcriticalwill.org/political/cd/speeches04/16MarchBangladesh.pdf

Disarmament: "We are concerned at the lack of progress on the part of the Nuclear Weapon States to accomplish the elimination of their arsenals leading to nuclear disarmament. We wish to stress that the threat to humanity is derived from the continued existence of nuclear weapons and of their possible use or threat of use. We cannot but underscore the need to accomplish the total elimination of nuclear weapons to save the world from the dangers of nuclear weapons. We urge that the parties concerned commence negotiations on this issue without delay." - **Statement by H.E. Mr. Shamsher M. Chowdhury, Foreign Secretary, to the First Committee on Disarmament and International Security, 14 October 2004.** http://www.reachingcriticalwill.org/political/1com/1com04/statements/Bangladesh.PDF

Practical Steps: "Bangladesh... attaches enormous importance to these undertakings and instruments at hand and urges upon all not to allow these achievements slip away in 2005, but to make every innovative and constructive effort to further strengthen these tangibly, to the benefit of Article VI of the NPT. All actions called for in 2000 under the 13 practical steps are all critically important and need specific recommendations towards further progress beyond 2005." - **Statement by Saida M. Tasneem to the Third Preparatory Committee of the 2005 Review Conference, 30 April 2004.**
http://www.reachingcriticalwill.org/legal/npt/prepcom04/bangladeshCL1.pdf

Democratic People's Republic of Korea

1. Location and capability of nuclear facilities

North Korea's first nuclear energy research complex was created at Yongbyon in 1964. Other facilities at that site, including a Soviet research reactor and a plutonium reprocessing plant, were soon added.

Most arms control experts suspect North Korea pursued an active weapons program up to 1994, when it signed an agreement (known as the 1994 Agreed Framework) with the US to freeze all nuclear weapons-related activities in exchange for the supply of heavy fuel oil, two power-generating reactors and improved bilateral ties, including security assurances.

In December 2002, North Korea restarted its nuclear reactor at Yongbyon, expelled the IAEA inspectors from the country and broke seals and disabled cameras that had been installed by the IAEA to monitor the freeze. On 10 January 2003, North Korea declared its withdrawal from the NPT, claiming immediate efficacy. By early 2005, North Korea announced that it had successfully produced nuclear weapons.

In late February 2003, North Korea restarted its reactor, and on 2 October, the North Korean Foreign Ministry declared that the reprocessing of 8,000 spent fuel rods had been completed "to increase its nuclear deterrent force." By early 2005, various sectors of the US intelligence community estimate that North Korea could have anywhere from 1-15 nuclear weapons.

As of 2005, the status of North Korea's withdrawal from the NPT has not been ascertained.
www.nti.org; www.fas.org; http://www.ieer.org/op-eds/radio/4nkorea.html

Nuclear facilities
The status of facilities at the Yongbyon complex are unknown, though these facilities include:

-An atomic reactor, with a capacity of about 5 electrical megawatts, constructed between 1980 and 1987, reportedly capable of expending enough uranium fuel to produce about 7 kilograms of plutonium annually

-two larger (estimated 50 electrical megawatts and 200 electrical megawatts) atomic reactors under construction since 1984; if completed, these plants are capable of producing enough spent fuel annually for 200 kilograms of plutonium, sufficient to manufacture nearly 30 atomic bombs per year.

-a plutonium reprocessing building about 600 feet long and several stories high.
www.fas.org/spp/starwars/crs/IB91141.pdf

It is unclear when North Korea started a uranium enrichment program, though many analysts estimate between 1997-1999.
Kerr, Paul, "N. Korea's Uranium-Enrichment Efforts Shrouded in Mystery," *Arms Control Today*, May 2003.

Uranium Mines
The status of the mines at Pakchon and Pyongsan are unknown.
Cirincione, Joseph. Dangerous Arsenals, Tracking Arsenals of Weapons, Carnegie Endowment for International Peace, June 2002, p.253. http://www.ceip.org/files/projects/npp/resources/DeadlyArsenals/chapters%20(pdf)/14-NoKorea.pdf

2. Fissile Material Holdings

Suspected Military Stocks of Fissile Material- 1-2 kg (end of 2003)
Unirradiated Plutonium 15-40
Highly Enriched Uranium (HEU)- unknown
http://www.isis-online.org/mapproject/country_pages/northkorea.html

Spent fuel- 25-30 kilograms of plutonium
http://www.isis-online.org/publications/dprk/currentandfutureweaponsstocks.html

3. Nuclear Activities

Nuclear Cooperation
US: Under the 1994 Agreed Framework, the DPRK was to freeze and eventually dismantle its existing suspect nuclear program, including reactors under construction, as well as its existing reactor and nuclear fuel reprocessing facility. In return, the US was to provide heavy oil shipments, the construction of two light water reactors (LWR) and security assurances.

The agreement was never fulfilled completely by either side; North Korea continued to expand its nuclear program and many shipments of oil were regularly delayed. Furthermore, construction on the LWRs was years behind; ground had only just been broken by the time the Agreed Framework was declared void in 2002. The Clinton administration, which signed the agreement, never codified security assurances; when the Bush administration named North Korea as a possible nuclear target in the 2002 Nuclear Posture Review, the Agreed Framework fell completely apart.

Russia: Russia provided various components of nuclear expertise to North Korea, including as late as 2001, when Russia sent 20 nuclear scientists to North Korea. Russia also assisted North Korea with clean-up and safety after a radioactive material spill by train.
http://www.nti.org/db/profiles/dprk/nuc/ie/NKN_EiussrD1.html

Various: Since its establishment in 1962, North Korea is suspected of (though rarely confirmed) cooperating with many countries on elements of nuclear cooperation, including Iran, Japan, Kazakhstan, Pakistan, Libya, Canada and China. http://www.nti.org/db/profiles/dprk/nuc/ie/NKN_EiotheD1.html

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
Biological Weapons Convention, 13 March 1987
Nuclear Non-Proliferation Treaty, 12 December 1985*

The DPRK has not signed the IAEA Additional Protocol.

*North Korea withdrew from the NPT in 1993 and later suspended its withdrawal. On January 2003, it declared again its withdrawal from the NPT, claiming immediate efficacy.

Multilateral Groups
Conference on Disarmament

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Nuclear weapons: "The DPRK is left with no other option but to possess a nuclear deterrent in the face of the situation in which the present US administration, being accustomed to rejecting our system, has been attempting to eliminate the DPRK by force while designating it as part of an 'axis of evil' and a target of preemptive nuclear strikes... The nuclear deterrent of the DPRK constitutes a legitimate self-defensive means to counter ever-growing US nuclear threat and aggression against the DPRK and reliably defend sovereignty, peace and security of the country." - **Statement by H.E. Mr. Choe Su Hon to the 59th session of the General Assembly, 27 September 2004.** http://www.un.org/webcast/ga/59/statements/dprkeng040927.pdf

Non-proliferation: "If the international community attaches an importance to the non-proliferation of weapons of mass destruction and does not want the existing international agreements on disarmament to be nullified or weakened, it should address the policy on nuclear threat(s) of the nuclear superpower and take the realistic measures to eliminate it.

"It is the consistent position of the DPRK to oppose the proliferation of weapons of mass destruction. If proliferation of weapons of mass destruction is to be prevented, it is necessary, first of all, to prohibit the deployment of weapons of mass destruction including nuclear weapons in many places of the world and eliminate the nuclear threat such as 'the doctrine of nuclear pre-emptive use'." - **Statement by Ambassador Pak Gil Yon, to the 59th session of the General Assembly First Committee on Disarmament and International Security, 12 October 2004.**
http://www.reachingcriticalwill.org/political/1com/1com04/statements/DPRK.PDF

Negative Security Assurances: "Only when nuclear disarmament accompanied by the abolishment (sic) of nuclear weapons is realized can the objective of disarmament be said to have been attained. ...(N)uclear disarmament should therefore be the primary mission in order to ensure the complete elimination of use of nuclear weapons and their total abolishment (sic) and the provision of unconditional nuclear negative assurances for Non-Nuclear Weapon States." - **Statement by Ambassador Pak Gil Yon, to the 59th session of the General Assembly First Committee on Disarmament and International Security, 12 October 2004.**
http://www.reachingcriticalwill.org/political/1com/1com04/statements/DPRK.PDF

Indonesia

1. Location and capability of nuclear facilities

Although it is the world's largest producer of natural gas, Indonesia is currently undertaking an ambitious nuclear power plant construction program to meet growing energy needs. The perceived goal of the program is to eventually build 12 nuclear power production facilities, but current planning calls for starting the construction of the first plant in 2010, with operational capability to be achieved by 2016. http://www.world-nuclear.org/info/inf47.htm

Research Reactors
Operational: 3
Shut down: 0
Decommissioned: 0
Planned: 1
http://www.iaea.or.at/worldatom/rrdb/

Power Reactors- 0

Uranium Mines
Remaja-Hitam (Kalimantan district)- operating
Rirang-Tanah Merah (Kalimantan district)- operating

Fuel Fabrication
The Nuclear Minerals Development Centre of the National Atomic Energy Agenc (BATAN) began mining for uranium in the 1960s. Since 1988, exploratory work has been concentrated in the Kalan area, with a significant drilling programme being completed in 1992. Exploration work has continued, but operations have been limited since 1997 because of financial reasons.

Two facilities- the Research Center for Nuclear Techniques in Bandung and the Centre for Exploration and Processing of Nuclear Materials- are able to process enough yellowcake to provide target fuel elements for Indonesia's research reactors. It remains unclear whether or not this facility can meet the processing needs for Indonesia's planned nuclear power reactors.

Reprocessing
Indonesia has no nuclear reprocessing facility at this time.
http://www.sipri.org/contents/expcon/cnsc3ins.html

2. Fissile Material Holdings

Radioactive waste disposal
The activities of waste treatment, storage, and disposal studies are mainly carried out performed by the Center for Development of Radioactive Waste Management of BATAN.
www.un.org/esa/agenda21/natlinfo/ countr/indonesa/sanitationIndonesia04f.pdf

3. Nuclear Activities

Research Centers
LIPI - Indonesian Inst of Sciences
PUSPIPTEK - Indonesian National Center for Research
http://www.radwaste.org/research.htm

Nuclear Cooperation
Australia: The 1997 Bilateral Nuclear Science and Technology Cooperation Agreement establishes a framework for promoting and facilitating cooperation in nuclear science and technology. Indonesia and Australia are also collaborating on research and development in support of strengthened safe-

guards.

Russia: On August 16, 2003, cooperation agreement including: development, design, construction and operation of research reactors and nuclear power plants including small power plants that comprise the floating nuclear power units, and R&D; facilities and accelerators for irradiation in medicine and industry; administrative and scientific personnel training and retraining; the state regulation of nuclear and radiation safety. The agreement is to be concluded for 10 years with automatic extension for the next five-year period. http://www.bellona.no/en/international/russia/nuke_industry/co-operation/31260.html

South Korea: South Korea agreed to help construct a US$200 million nuclear power plant on Indonesia's Madura island, which should be operational by 2015.
http://www.world-nuclear.org/nb/nb03/nb0315.htm

IAEA, France, Canada, India, Japan: Indonesia's National Nuclear Energy Agency, BATAN, has established collaboration with the IAEA and several countries for development in the management of radioactive wastes. This collaboration takes the form of training, scientific visits, seminars and technical assistance from international experts. http://www.electricityforum.com/news/aug03/russindonesia.html

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
APM Convention, signed 4 December 1997 (not ratified)
Biological Weapons Convention, 4 February 1992
Comprehensive Nuclear Test-Ban Treaty, signed 24 September 1996 (not ratified)
Chemical Weapons Convention, 12 November 1998
Nuclear Non-Proliferation Treaty, 12 July 1979
Outer Space Treaty, signed 27 January 1967 (not ratified)
Treaty of Bangkok, 10 April 1997

Indonesia ratified the IAEA Additional Protocol 29 September 1999.

Multilateral Groups
Conference on Disarmament

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Nuclear Weapon-Free Zones: "Positive developments continued in regional disarmament endeavors in some parts of the globe. We are gratified that differences among the intra-regional states and between them with external powers for the establishment of a Nuclear Weapon Free Zone in Central Asia are being resolved to the satisfaction of the parties concerned. As far as the Bangkok Treaty is concerned, consultations with Nuclear Weapon States are particularly important to seek a mutually satisfactory solution for their accession to Protocol. Indonesia and other signatories to this Treaty remain hopeful that the on-going efforts with nuclear powers will be productive in the foreseeable future in the context of strengthening the efficacy of Southeast Asia as a Nuclear Weapon Free Zone." - **Statement by H.E. Mr. Rezlan Ishar Jenie to the 59th session of the General Assembly First Committee on Disarmament and International Security, 4 October 2004.**
http://www.reachingcriticalwill.org/political/1com/1com04/statements/Indonesia.pdf

Disarmament and practical steps: "Progress in the area of nuclear disarmament is far from being favorable for a successful outcome of this review process. There have been some mitigating developments in this direction which include, among others, negligence and disregard of the commitment to uphold the principles and objectives of nuclear disarmament- and in some cases backsliding- in the implementation of the "13 practical steps", and the stalemate in the Conference on Disarmament." - **Statement to**

the Third Preparatory Committee of the 2005 Review Conference, 3 May 2004.
http://www.reachingcriticalwill.org/legal/npt/prepcom04/IndonesiaCL1.pdf

Negative Security Assurances: "Furthermore, the security concerns of the vast majority of non-nuclear nations need to be addressed within the framework of negative security assurances. In this regard, a credible guarantee through a legally binding multilateral instrument against the use or the threat of use of nuclear weapons will be a critical element in maintaining the norm of non-proliferation." - **Statement by H.E. Mr. Rezlan Ishar Jenie to the Third Preparatory Committee of the 2005 Review Conference, 26 April 2004.** http://www.reachingcriticalwill.org/legal/npt/prepcom04/indonesia26.pdf

Japan

1. Location and capability of nuclear facilities

Japan has developed a nuclear program for non-military purposes since the 1950s. Due to problems at Tokyo Electric Power Company, with all reactors closed down at one stage, nuclear energy production lowered in 2002, 2003 and 2004. In 2003, nuclear energy accounted for 26.6% of total energy production. Japan has few natural resources of its own, and depends on imports for some 80% of its energy needs. http://www.world-nuclear.org/info/inf79.htm; http://www.world-nuclear.org/info/reactors.htm

Power Reactors
Operational: 53
Shut down: 2
Decommissioned: 3
Planned: 12
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 15
Shut down: 6
Decommissioned: 3
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Uranium Mines
Japan terminated its domestic uranium exploration program in 1988. Mining interests previously held by the Japanese government abroad are being transferred to the private sector.
www.e-convention.org/imhc/papers/Sakamaki_e.pdf

Fuel Cycle
Japan has been developing a complete domestic nuclear fuel cycle industry, based on imported uranium. A small uranium refining and conversion plant is operated by Japan Nuclear Cycle Development Institute (JNC), as well as a small centrifuge enrichment demonstration plant, at Ningyo Toge, Okayama prefecture. Most enrichment services are imported, but Japan Nuclear Fuel Ltd (JNFL) operates a commercial enrichment plant at Rokkasho. In December 2004, the reprocessing plant in Rokkasho commenced uranium trials, and is the only large-scale reprocessing plant in the world expected to begin full-scale operations in the near future.
http://www.world-nuclear.org/info/inf79.htm

Reprocessing Plants
Since 1956, the Japanese policy has been to maximize the use of imported uranium, extracting an extra 25-30% of energy from nuclear fuel by recycling the unburned uranium and plutonium as mixed-oxide fuel (MOX).

Up until recently, the reprocessing of spent fuel has been done in Europe by British Nuclear Fuel, Ltd (BNFL) and Cogema, with vitrified high-level wastes being returned to Japan for disposal. This co-operation is scheduled to terminate in 2005

Japan has announced plans to use MOX fuel in 16-18 reactors by the year 2010. Recent local concerns about MOX fuel use, related to its plutonium content, have stalled the implementation of the program.
http://www.world-nuclear.org/info/inf79.htm ; http://www.world-nuclear.org/nb/nb05/latestnews.htm

2. Fissile Material Holdings

Unirradiated Civil Plutonium
In country: 5.475 tons
In other countries: 35.168
Total: 38.6

Separated Civil Plutonium
end 2002: 40.643

2010 (projected): 40-60
2015 (projected): 20-80
2020 (projected): 15-80

The ranges reflect the uncertain timing of Japan's use of MOX in reactors and the amount of plutonium it plans to separate in the Rokkasho reprocessing plant.
http://www.isis-online.org/global_stocks/separated_civil_pu.html

Radioactive waste disposal
Low-level waste: The Japan Nuclear Fuel Limited-owned center in Rokkasho works as repository for low-level waste generated at nuclear power plants throughout Japan. The disposal method is shallow burial of the waste in drum cans.
http://cnic.jp/english/topics/cycle/rokkasho/rokkashodata.html#llw

High-level waste: The high-level waste stored at Rokkasho today is waste produced during reprocessing overseas and returned to Japan, as reprocessing has not yet started at the site. More waste will be returned in the future and more storage space will be required. In March 2001, Japan Nuclear Fuel (JNFL) put forward a proposal to construct an additional interim storage facility at the Rokkasho site to store vitrified high-level waste returned from overseas, as the existing waste storage center will be filled by the end of 2005. In January 2005, the operating storage was subject to a safety inspection, which found major problems with the cooling system of the vitrified high-level waste storage buildings. Too high a temperature in the storage risks leading to cracks in the glass canisters holding the vitrified waste. http://cnic.jp/english/newsletter/nit105/nit105articles/nit105glassrok.html
http://cnic.jp/english/topics/cycle/rokkasho/rokkashodata.html#reproc

In June 2000, a law about final disposal of nuclear waste was announced and strategies for the disposal of high-level waste were formulated. In October the same year, authorization was granted to establish the Nuclear Waste Management Organization of Japan (NUMO). NUMO plays a key role in the high-level waste disposal project and is responsible for identification of the disposal site, construction, operation and maintenance of the repository, closure of the facility and post-closure institutional control. http://www.numo.or.jp/english/jigyou/new_eng_tab03.html

Construction of a repository in granite or sedimentary rock is planned for the 2030s. NUMO has begun an open solicitation process to find a site, and by 2007 will shortlist potentially suitable offers. The promising ones will be subject to detailed investigation by 2012. A third phase to 2025 will end with site selection. http://www.world-nuclear.org/info/printable_information_papers/inf79print.htm

3. Nuclear Activities

Research Centers
Central Institute of Isotope Science
CRIEPI: Central Research Institute of Electric Power Industry
Institute of Advanced Energy, Kyoto University
INSAF: International Network for Safety Assurance of Fuel Cycle Industries
JAERI: Japan Atomic Energy Research Institute
Kansai Research Establishment
KEK: High Energy Accelerator Research Organization
KENS Neutron Scattering Facility
Kobelco Research Institute
LDRC: Low Dose Radiation Research Center
Musashi Institute of Technology -Atomic Energy Research Institute
NIC: Nuclear Information Center
NIFS: National Institute for Fusion Science

NIRE: National Institute for Resources & Environment
NIRS: Japanese National Institute of Radiological Sciences
NMCC: Nuclear Material Control Center
NUSTEC: Nuclear Safety Technology Center Office of Nuclear Ship Research & Development
Office of Nuclear Ship Research & Development
ReaD: Research and Development Database
RERF: Radiation Effects Research Foundation
RIKEN: Institute of Physical & Chemical Research
SARL: Severe Accident Research Laboratory
SPring-8 Synchrotron Radiation Facility
SRI: Ship Research Institute
TIARA Research Facilities.
http://www.radwaste.org/research.htm

Nuclear Cooperation
France, UK: Reprocessing Japanese spent fuel has been largely undertaken in Europe by BNFL and Cogema. Vitrified high-level wastes are then returned to Japan for disposal.

Plutonium recovered by reprocessing in the UK and France will be used mainly as mixed-oxide (MOX) fuel. This reprocessing will finish in 2005. Full-scale operation of JNFL's reprocessing plant at Rokkasho is scheduled to start in July 2006. To date, Japan has received four shipments containing over two tons of its reactor-grade plutonium from Europe.
http://www.world-nuclear.org/info/printable_information_papers/inf79print.htm

US: In May, 2004, The US Department of Energy and Japan's Agency for Natural Resources and Energy (ANRE) signed an arrangement to increase nuclear cooperation, focusing especially on innovative light water technologies, innovative processing technologies of oxide fuel for light water reactors, and innovative fuel technologies using solvent extraction and other areas.
http://www.ne.doe.gov/ineri/ineriagreementsjapan.html

Taiwan: In May 2004, Japan and Taiwan signed an agreement to promote bilateral cooperation in nuclear energy control and safety.
http://www.globalsecurity.org/wmd/library/news/taiwan/2004/taiwan-040526-cna02.htm

China: In 1994, an agreement on nuclear safety cooperation was signed, in addition to a 1985 nuclear energy cooperation agreement. http://www.nti.org/db/china/nca.htm

Japan has been involved in training nuclear power personnel from Russia, Ukraine, Bulgaria, Hungary and the Czech and Slovak Republics in all aspects of nuclear safety.
http://www.world-nuclear.org/info/inf38.htm

4. International Non-proliferation Efforts

Japan is also a participant in the G8 Global Partnership against the spread of weapons and materials of mass destruction, launched in Kananaskis, Canada 2002.

Treaties Signed and Ratified, date of deposit
APM Convention, 30 September 1998
Biological Weapons Convention, 8 June 1982
Certain Conventional Weapons Convention, 9 June 1982
Comprehensive Nuclear Test-Ban Treaty, 8 July 1997
Chemical Weapons Convention, 15 September 1995
Nuclear Non-Proliferation Treaty, 8 June 1976
Outer Space Treaty, 10 October 1967

Sea Bed Treaty, 21 June 1971

Japan ratified the IAEA Additional protocol 16 December 1999.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Nuclear Suppliers Group
Proliferation Security Initiative
Wassenaar Arrangement
Zangger Committee

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Disarmament and Universality: "Nuclear non-proliferation and nuclear disarmament are mutually reinforcing, hence both need to be promoted. Both Nuclear Weapon States and Non-Nuclear Weapon States must remain fully committed to their obligations ad commitments under the NPT. In order to achieve universality of the Treaty, Japan calls upon states not parties to the NPT to accede to it as Non-Nuclear Weapon States without conditions and without delay." - **Statement by H.E. Mr. Yoshiki Mine to the 59th Session of the General Assembly First Committee on Disarmament and International Security, 18 October 2004** .
http://www.reachingcriticalwill.org/political/1com/1com04/thematic/japan.pdf

Fissile Material Treaty: "It is also cause for regret that the Conference on Disarmament (CD) has not yet commenced negotiations on a fissile material cut-off treaty (FMCT) despite the conclusion of the 2000 NPT Review Conference. Placing a global ban on the production of fissile material for nuclear weapons is the most effective way to prevent proliferation. Also will it enhance transparency and accountability in the management of such materials through its verification system. Thus, the FMCT will be an essential building block towards the total elimination of nuclear arsenals and will also contribute to the prevention of nuclear proliferation." - **Statement by H.E Mr. Yoshiki Mine to the Third Preparatory Committee of the 2005 NPT Review Conference, 30 April 2004.**
http://www.reachingcriticalwill.org/legal/npt/prepcom04/japanCL1.pdf

Disarmament Education: "I would like to stress the importance of disarmament and non-disarmament education. In the current unsettled security environment, there is a clear need to inform people of the dangers posed by weapons of mass destruction and their disastrous consequences, as evidenced by the devastation of Hiroshima and Nagasaki. In order to advance disarmament and non-proliferation, it is essential to gain the understanding and support of the young people who will lead future generations, as well as of civil society as a whole." -**Statement by H.E. Mr. Yoshiki Mine to the Third Preparatory Committee of the 2005 Review Conference, 3 May 2004.**
http://www.reachingcriticalwill.org/legal/npt/prepcom04/Japan3.pdf

Republic of Korea

1. Location and capability of nuclear facilities

About 97% of South Korea's energy needs are supplied by imports. The country began operating a nuclear power program in the late 1970s and today 20 nuclear reactors provide some 40% of the country's electricity. The uranium requirement for the reactors is estimated at 3,011 tons in 2005. Most of the nuclear power generation in South Korea is state owned but a privatization process is started and a few private producers exist.
http://www.world-nuclear.org/info/printable_information_papers/inf81print.htm;
http://www.eia.doe.gov/emeu/cabs/skorea.html; http://www.world-nuclear.org/info/reactors.htm

Power Reactors
Operational: 20
Under construction/planned: 8
Decommissioned: 2 are slated for decommissioning around 2008
http://www.iaea.or.at/programmes/a2/
http://www.world-nuclear.org/info/printable_information_papers/inf81print

Research Reactors
Operational: 2
Shut down: 2
http://www.iaea.or.at/worldatom/rrdb/

Fuel cycle facilities
The Korean Atomic Research Institute (KAERI) has developed both pressurized water reactor (PWR) and CANDU fuel technology. It and Korea Nuclear Fuel Company (KNFC) have supplied PWR fuel since 1990 and unenriched CANDU fuel since 1987.

Uranium for fuel comes from Canada, Australia and elsewhere. http://www.world-nuclear.org/info/inf81.htm

In October 2004, South Korea admitted several activities to the IAEA that had not been previously declared as required under the safeguards agreement, in particular those activities of the Korean Atomic Energy Research Institute (KAERI), which had separated small quantities of plutonium in 1982, manufactured depleted uranium munitions from 1983 to 1987 and experimented with uranium enrichment in 2000. South Korea insisted that the experiments were conducted without political or military oversight or direction and were not supported by the government. The quantities of fissile material from either the plutonium separation or uranium enrichment experiments would not have been enough to create weapons. However, the fact that South Korea did this research and kept it secret could have troubling implications for the future of non-proliferation in the region.
http://www.thebulletin.org/article.php?art_ofn=jf05kang

2. Fissile Material Holdings

Separated Civil Plutonium
end 2002: 41 tons
http://www.isis-online.org/global_stocks/civil_pu.html#table7

Radioactive waste disposal
Low- and intermediate-level waste: Spent fuel is stored at each reactor site. A central disposal repository is proposed for low- and intermediate-level waste from about 2008. The location for the site should be selected by September 2005, and residents of the candidate site will take the final decision by a vote.

High-level waste: Spent fuel is stored on the reactor site. A centralized interim storage facility with a

20,000 ton capacity is expected to be constructed by 2016. Dry storage is used for CANDU fuel after 6 years cooling. Eventually, South Korea plans to create a long-term, deep geological disposal.
http://www.world-nuclear.org/info/printable_information_papers/inf81print.htm
http://projects.sipri.se/nuclear/cnsc5kos8.htm; http://times.hankooki.com/lpage/biz/200503/kt2005032217111611900.htm

3. Nuclear Activities

Research Centers
APCTP: Asia Pacific Center for Theoretical Physics
DICER: Digital Information Center for Environment Research
Hanaro Research Reactor
KAERI: Korea Atomic Energy Research Institute
KBSI: Korea Basic Science Institute
KEEI: Korea Energy Economics Institute
KEPRI: Korea Electric Power Research Institute
KIST: Korea Inst of Science & Technology
KORTIC: Korea Radiation Technology Institute
NETEC: Nuclear Environment Technology Institute
NUPERM: Nuclear Power Performance Management Research Center
Pohang Pulsed Neutron Facility
SAFE Research Center
TCNC: Technology Center for Nuclear Control
http://www.radwaste.org/research.htm

Nuclear Cooperation
US, Europe, Canada: In 1996, South Korea imported units from ABB Combustion Engineering in USA, Framatome in Europe and AECL in Canada.
http://www.iaea.org/About/Policy/GC/GC47/Documents/gc47inf-8.pdf

China: In 1994, the two countries signed an agreement for cooperation in Chinese nuclear power projects. A number of similar agreements have been signed since then.
http://www.nti.org/db/china/nca.htm

North Korea: North Korean technicians have attended safety training programs in South Korea during 2001. http://www.cscap.nuctrans.org/Nuc_Trans/links/cossasum-2002.htm

KHNP (Korea Hydro & Nuclear Power Co Ltd) is building two reactors at Kumho in North Korea, contracted by the Korean Energy Development Organisation.
http://www.world-nuclear.org/info/printable_information_papers/inf81print.htm

The Joint Declaration on the Denuclearization of The Korean Peninsula was signed in 1992, but both sides have failed to implement the agreement on a bilateral inspection regime.
http://www.nti.org/e_research/e1_skorea_1.html

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
Biological Weapons Convention, 25 June 1987
Certain Conventional Weapons Convention, 9 May 2001
Comprehensive Nuclear Test-Ban Treaty, 24 September 1999
Chemical Weapons Convention, 28 April 1997
Nuclear Non-Proliferation Treaty, 23 April 1975
Outer Space Treaty, 13 October 1967
Sea Bed Treaty, 25 June 1987

South Korea ratified the IAEA Additional Protocol 19 February 2004.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct
Nuclear Suppliers Group
Proliferation Security Initiative

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Negative Security Assurances: "Moreover, it is essential to address the root causes of proliferation as well. Given that regional instability and security deficits can serve as convenient excuses for proliferators to justify their nuclear ambitions, it is essential to create a stable international and regional security environment conductive to non-proliferation. Against this backdrop, we see merit in the provision of negative security assurances by the Nuclear Weapon States. NSAs can reduce the perception of threat from the Nuclear Weapon States and incentives for proliferation." - **Statement by Ambassador Chun Yung-woo to the Third Preparatory Committee of the 2005 NPT Review Conference, 26 April 2004.** http://www.reachingcriticalwill.org/legal/npt/prepcom04/RepKoreaCL1.pdf

Export Controls: "The Republic of Korea also attaches great importance to export controls over technologies and items of proliferation significance as a practical way of complementing the existing loopholes of the NPT. In this connection, we support the leading role of the Nuclear Suppliers Group and establishment of a universal system of export controls. We recognize the need to control the transfer of sensitive fuel cycle technologies and items, particularly to countries of proliferation concern."
- **Statement by Ambassador Chun Yung-woo to the Third Preparatory Committee of the 2005 NPT Review Conference, 26 April 2004** .
http://www.reachingcriticalwill.org/legal/npt/prepcom04/RepKoreaCL1.pdf

Fissile Material Treaty: "It is well known that the Republic of Korea attaches great importance to the early conclusion of a non-discriminatory, multilateral and internationally and effectively verifiable treaty of fissile material for nuclear weapons or other nuclear explosive devices. We strongly support the draft resolution in the hope that it will work as a momentum to facilitate the immediate commencement of the FMCT negotiations in the CD." - **Statement to the First Committee on Disarmament and International Security, 18 October 2004.**
http://www.reachingcriticalwill.org/political/1com/1com04/thematic/Korea.PDF

Vietnam

1. Location and capability of nuclear facilities

Today there is no nuclear power in Vietnam, but the country is planning for nuclear power electricity generation, to reduce its dependence on hydro- and fossil-fuel resources. The state owned EVN (Electricity Vietnam) has done a feasibility study on nuclear energy and concludes that the country has the capability for nuclear power. Still, concerns remain about experience, safety, technology and management of such a plant; the government has called for international support and cooperation.

The first nuclear power plant is expected to open either in central Ninh province or Phu Yen province around 2015 and 2020. http://www.npcil.org/nupower_vol13_4/npovavol4.htm;
http://www.nuclear.com/nation-by-nation/Vietnam_news.html;
http://strategis.ic.gc.ca/epic/internet/inimr-ri.nsf/fr/gr-73012f.html

Research Reactors
Operational: 1
Planned: 0
http://www.iaea.or.at/programmes/a2/

Fuel Cycle
Vietnam would import fuel for the first phase of operation of the planned power plants. Systematic exploration for uranium has been going on since 1978, with a number of findings. While unquantified amounts of unconventional resources have been found in coal, rare earths, phosphates and graphite deposits, no production of uranium has of yet been done.
http://www.worldenergy.org/wec-geis/publications/reports/ser/uranium/uranium.asp

2. Nuclear Activities

Research Centers
Vietnam Atomic Energy Commission (VAEC) consists of five main institutions:
NRI: Nuclear Research Institute in the Dalat City (Dalat)
CNT: Centre for Nuclear Techniques in the Ho Chi Minh City (HCM)
Irradiation Centre in the Ho Chi Minh City
INST: Institute of Nuclear Science and Techniques in Hanoi (Hanoi)
ITRE: Institute for Technology of Radioactive and Rare Elements in Hanoi (Hanoi)
http://www.vaec.gov.vn/

Nuclear Cooperation
India: An agreement was signed in 1999 between the Indian Atomic Energy Commission and the Vietnam Atomic Energy, on nuclear cooperation, scientists exchange and assistance in setting up a training centre at Vietnam.

IAEA: Vietnam is part of the IAEA Regional Cooperation Agreement (RCA) and South Asian Frameworks for Environmental Data-Sharing, a structure to increase nuclear transparency in South Asia. http://www.acronym.org.uk/dd/dd55/55rajen.htm

Russia: In 2002, an intergovernmental agreement was made between Russia and Vietnam on cooperation in nuclear energy.
http://www.bellona.no/en/international/russia/nuke_industry/co-operation/channel15203n25s25_.html

A memorandum of understanding was signed in February, in which Russia and Vietnam agreed that Moscow will help build Vietnam's first nuclear power plant.
http://www.antenna.nl/wise/index.html?http://www.antenna.nl/wise/610/brief.php

3. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
Biological Weapons Convention, 20 June 1980
Certain Conventional Weapons Convention, signed 10 April 1981(not ratified)
Comprehensive Nuclear Test-Ban Treaty, signed 24 September 1996 (not ratified)
Chemical Weapons Convention, 30 September 1998
Nuclear Non-Proliferation Treaty, 14 June 1982
Outer Space Treaty, signed 20 June 1980 (not ratified)
Sea Bed Treaty, signed 20 June 1980 (not ratified)
Treaty of Bangkok, 26 November 1996

Vietnam has not yet signed the Additional Protocol.

Multilateral Groups
Conference on Disarmament

4. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Disarmament: "Secondly, it is universally recognized that the NPT also constitutes the essential foundation for the pursuit of nuclear disarmament. The coming into existence of the NPT has been dictated by the final objective of achieving the total elimination of nuclear weapons. The nature of the relationship between the NPT and nuclear disarmament requires that the promotion of nuclear non-proliferation be undertaken hand in hand with corresponding progress towards nuclear disarmament. In the context of very slow progress toward nuclear disarmament in recent years, it has become more pertinent and justified that the Nuclear Weapon States should strictly undertake their obligations to stop the improvement, development, production and stockpiling of nuclear warheads and their delivery systems, and as an interim measures, to de-alert and de-active them and gradually reduce them. Nuclear Weapon States must fully implement the unequivocal undertakings they have given at the 2000 Review Conference to accomplish the total elimination of their nuclear arsenals leading to total nuclear disarmament."

Negative Security Assurances: "Pending the total elimination of nuclear weapons, efforts for the conclusion of a universal, unconditional and legally binding instrument on security assurances to non-Nuclear Weapon States should be pursue as a matter of priority."

Nuclear Weapon-Free Zones: "Thirdly, nuclear weapon-free zones not only make significant contribution toward achieving regional and international security, but also strengthen the NPT regime and the process of total nuclear disarmament... Viet Nam is working closely with other ASEAN member states to ensure Southeast Asia remains a region free from nuclear weapons."

Practical steps: "The NPT implementation will not be complete if the efforts of the international community aim at only one or another aspect of their commitments in implementing their obligations under the Treaty, the decisions and the resolutions of the 1995 Review and Extension Conference and the Final Document of the 2000 Review Conference, especially the 13 practical steps laid down in the Final Document of the 2000 Review Conference. The strengthening of the NPT regime should be one of highest priority issues discussed at...the upcoming 2005 Review Conference.

- **All statements by Mr. Nguyen Duy Chien to the Third Preparatory Committee of the 2005 NPT Review Conference, 27 April 2004** http://www.reachingcriticalwill.org/legal/npt/prepcom04/vietnam27.pdf

Democratic Republic of Congo

1. Location and capability of nuclear facilities

Although the Democratic Republic of Congo has no nuclear power program, its uranium resources have been used by other countries pursuing nuclear weapons programs. During the cold war, large parts of the United States' uranium supply were imported from the Belgian Congo. Under Belgian colonial rule, the Shinkolobwe mine provided uranium for bombs dropped by the US on Nagasaki and Hiroshima. http://www.globalsecurity.org/wmd/world/congo/

Research Reactors
Operational: 1
Shut down: 1
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Power Reactors- 0

Uranium Mines
Shinkolobwe (Shaba province)- decommissioned, though still used for cobalt and copper compounds mining.

Since 1997, 6000 miners enter the former Shinkolobwe mine site each day without authorization. The original mine has been flooded and cemented, though these illegal miners have excavated a huge open pit next to the original mine. While most of the miners are interested in cobalt, uranium could also be extracted from the ore. In the absence of control over possible uranium extraction, the DR Congo has faced significant international pressure to regain control over the mine site. In January 2004, President Joseph Kabila decided to interdict access to the mine site, yet with no apparent results. In July 2004, at least eight miners digging the former Shinkolobwe mine illegally were killed when the mine collapsed. http://www.antenna.nl/wise/uranium/udec.html#SHINKOLOBWE

Congo has been repeatedly implicated in the illegal transfer and transport of radioactive materials. In March 2004, Congolese authorities seized radioactive shipments of uranium smuggled into the country illegally, bypassing international regulations and violating international conventions.
http://www.planetark.com/dailynewsstory.cfm/newsid/24428/story.htm

2. Nuclear Activities

Research Centers
Commissariat des Sciences Nucleaires, Kinshasa
Commissariat general a l'energie atomique, Kinshasa
http://www.iaea.org/inis/ws/research_institutes/congo.html

Nuclear Cooperation
North Korea, Iraq: Reports have surfaced that have implicated North Korea and Iraq in schemes to re-open Shinkolobwe to obtain uranium, but these remain unconfirmed. In August 1999 it was reported that the DR Congo was suspected of trying to re-open the Shinkolobwe uranium mine with help from North Korea. Mining engineers from North Korea arrived in 1999 but were asked to leave under pressure from the US. http://www.globalsecurity.org/wmd/world/congo/

3. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
Comprehensive Nuclear Test-Ban Treaty, 28 September 2004
Nuclear Non-Proliferation Treaty, 4 August 1970

Outer Space Treaty, not yet deposited
Treaty of Pelindaba, 4 November 1996

DRC ratified the IAEA Additional Protocol 9 April 2003.

4. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Disarmament: "Many delegations before mine expressed serious preoccupations about the progress of disarmament and the threat of weapons of massive destruction to humanity, 25 years after the first special session of the General Assembly devoted to disarmament. They have also noted the necessity to again start work in the Conference on Disarmament, the only multilateral framework for negotiations as regards disarmament which, for the fifth consecutive year, still did not adopt its program of work. We...say clearly that the objectives of disarmament in general are far from being reached.... In an international context, with increasing threats to international peace and security, adhesion to the international disarmament instruments appears vital for all." (unofficial translation)- **Statement by Mr. Luc Joseph Okio, Minister Counsellor, to the 58th session of the General Assembly First Committee on Disarmament and International Security, 15 October 2003.**
http://www.reachingcriticalwill.org/political/1com/1com03/genstate03/drc.pdf

South Africa

1. Location and capability of nuclear facilities

In 1960s, South Africa commenced a nuclear power program and began to experiment with development of a limited deterrent capability. South Africa manufactured a smaller number of nuclear weapons in the 1970s, but the program was halted in 1989 with the fall of the apartheid.

Since then, South Africa has acceded to the NPT as a Non-Nuclear Weapon State and its nuclear disarmament was confirmed through IAEA inspections.

Today, coal fuel is the largest source of energy for South Africa. Remaining energy is derived from hydro, gas and nuclear sources. http://www.nti.org/e_research/profiles/SAfrica/index.html; http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/CNPP_Webpage/countryprofiles/SouthAfrica/SouthAfrica2003.htm

Power Reactors
Operational: 2
Shut down: 1
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 1
Shut down: 0
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Uranium Mines
Uranium mining in South Africa started in the late 1940s in the Witwatersrand Basin in the Transvaal, where uranium was a by-product of gold mining. The 1973-1974 oil crisis triggered intensified exploration for uranium, leading to the country's first primary uranium mine (Beisa) coming into production in 1982. However, uranium is still mainly a by-product of the extensive gold mining.
http://www.worldenergy.org/wec-geis/publications/reports/ser/uranium/uranium.asp

Mine	Location	Status
Beisa	Free State	decommissioned
Blyvooruitzicht	Mpumalanga	decommissioned
Driefontein	Mpumalanga	decommissioned
East Rand	Mpumalanga	decommissioned
Freegold	Free State	decommissioned
Hartebeestfontein	Klerksdorp	halted
Merriespruit	Free State	decommissioned
Palabora	Northern Transvaal	closed
Randfontein	Gauteng	decommissioned
Rhenosterhoek	Klerksdorp	idle
Rietkuil	Klerksdorp	idle
Stilfontein	North West	decommissioned
Vaals Reefs	Gauteng	closed
West Rand Consolidated	Gauteng	decommissioned
Western Areas	Gauteng	closed
Western Deep Levels	Mpumalanga	closed

Reprocessing Plants
The Valindaba facilities in the North West region of South Africa, which undertook uranium conversion and enrichment, were permanently closed down in the mid-1990s.
http://www.antenna.nl/wise/uranium/uoafr.html#ZA; http://www.antenna.nl/wise/uranium/uproj.html
http://www.world-nuclear.org/wgs/decom/database/php/qry1_results_allfacilities.php

2. Fissile Material Holdings

Separated Civil Plutonium- 4.3 tons (end 2002)
http://www.isis-online.org/global_stocks/civil_pu.html#table7

Ex-military Stocks of Highly Enriched Uranium- 600-750 kilograms (end of 2003)
http://www.isis-online.org/mapproject/country_pages/southafrica.html

Radioactive waste disposal
Low- and intermediate-level waste: Low- and intermediate-level waste from the Koeberg reactor is disposed of at the National Radioactive Waste Repository in Vaalputs. The waste is stored in metal steel drums and concrete containers. Spent fuel is stored on site in wet storage or dry casks with a reported storage capacity of 40 additional years.
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/index.htm

High-level waste: Currently high level radioactive waste from Koeberg is stored on site, while awaiting a decision on a final storage site. http://www.earthlife-ct.org.za/ct/article.php?story=20040603224317184

3. Nuclear Activities

Research Centers
CSIR: Council for Scientific & Industrial Research
Geological Survey of South Africa
NAC: National Accelerator Centre
NECSA: South African Nuclear Energy Corporation
http://www.radwaste.org/research.htm; http://www.world-nuclear.org/portal/nuclear_research_centres.htm

Nuclear Cooperation
US: 1957 agreement for construction of Safari-1 reactor and supply of highly enriched uranium fuel from US company, Allis Chalmers. US also supplied enriched uranium and heavy water for the Safari-2 reactor. http://www.nti.org/e_research/profiles/SAfrica/Nuclear/2149.html

France: Agreement signed on cooperation on molecular laser isotope enrichment 1996.
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/index.htm

IAEA: South Africa works closely with IAEA to help it uncover international smuggling of nuclear weapons-related materials.

Iran: In 2004, a meeting between South African President Thabo Mbeki and Iran's secretary of national security resulted in South Africa offering to help Iran resolve questions about its nuclear program that have caused concern within the IAEA. http://www.nti.org/e_research/profiles/SAfrica/Nuclear/2149_4624.html

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
Antarctic Treaty, 21 June 1960
Biological Weapons Convention, not ratified
Chemical Weapons Convention, not ratified
Comprehensive Nuclear Test-Ban Treaty, 30 March 1999
Convention on the Physical Protection of Nuclear Material, 8 February 1987
Nuclear Non-Proliferation Treaty, 10 July 1991
Outer Space Treaty , 8 October 1968
Sea Bed Treaty, 26 November 1973
Treaty of Pelindaba, 27 March 1998

South Africa ratified the IAEA Additional Protocol 13 September 2002.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
New Agenda Coalition
Nuclear Suppliers Group
Wassenaar Arrangement
Zangger Committee

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

State of the NPT: "While it is true that the periods since 1995 and 2000 have seen developments which have impacted negatively on the goal of nuclear weapons non-proliferation, the proliferation of States with nuclear weapons capabilities, a withdrawal from the NPT, the proliferation of nuclear weapons technologies and an instance of non-compliance-it continues to be fair to say that the overwhelming majority of non-nuclear-weapons States Parties to the NPT have demonstrated, and are continuing to demonstrate, their full commitment to, and compliance with, their obligations. On the other hand, and by way of example:

-There has been only limited progress made in implementing the thirteen steps on nuclear disarmament to which all States Parties agreed at the 2000 Review Conference…

-Pressure appears to be waning on the three states which are not yet parties to the NPT, and which operate unsafeguarded nuclear facilities, to accede to the Treaty as non-nuclear-weapon States promptly and without conditions, and to bring into force the required comprehensive safeguards agreements, together with additional protocols. To the contrary reports indicate greater co-operation with these States even in the field of nuclear co-operation…

- There is no sign of engagement by all five nuclear-weapon States in a plurilateral process leading to the total elimination of nuclear weapons." - **Statement by Mr. Peter Goosen to the Third Preparatory Committee of the 2005 Review Conference, 26 April 2004.**
http://www.reachingcriticalwill.org/legal/npt/prepcom04/safrica26.pdf

Nuclear energy: "South Africa fully recognizes and supports the inalienable right of all states to utilize atom for peaceful purposes only in conformity with the rights and obligations contained in the NPT. As agreed at the 2000 NPT RevCon, 'each country's choices and decisions in the field of peaceful uses of nuclear energy should be respected without jeopardizing its policies or international co-operation agreements and arrangements for peaceful uses of nuclear energy and its fuel cycle policies'.

"South Africa believes that should we find, through recent experiences, that existing instruments are not adequate and the non-proliferation regime needs to be strengthened, this should be addressed collectively within the relevant technically competent and multilateral institutions." - **Statement to the First Committee on Disarmament and International Security, 4 October 2004.**
http://www.reachingcriticalwill.org/political/1com/1com04/statements/SA.pdf

Disarmament: "As stated on various previous occasions, South Africa believes that any presumption of the indefinite possession of nuclear weapons by the Nuclear Weapon States is incompatible with the integrity and sustainability of the nuclear non-proliferation regime and with the broader goal of the maintenance of international peace and security. It is our view that continuous and irreversible progress in nuclear disarmament, nuclear reductions and other related nuclear arms control measures remains fundamental to the promotion of nuclear non-proliferation."- **Statement to the Third Preparatory Committee of the 2005 Review Conference, 29 April 2004.**
http://www.reachingcriticalwill.org/legal/npt/prepcom04/safricaCL1.pdf

Algeria

1. Location and capability of nuclear facilities

Between 1960 and 1965, Algeria was the testing ground for French nuclear weapons. Altogether, 14 nuclear weapons tests were conducted at two Algerian sites. In the early 1980s, Algeria officially launched its nuclear program and established the Commissariat for New Energy to further developments in nuclear energy production.
http://www.fas.org/nuke/guide/algeria
http://www.globalsecurity.org/wmd/world/algeria/index.html

In March 2005, Noureddine Bendjaballah, commissioner for Algeria's Atomic Energy Commission, announced that Algeria intends to sign the IAEA Additional Protocol. This would enable the IAEA to carry out inspections of the two Algerian research reactors.
http://www.nti.org/d_newswire/issues/2005/3/22/8D9E1616-4579-4792-A7D5-FE4D5D74973C.html

Power Reactors-0

Research Reactors
Operational: 2
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Uranium Mines
There are no active uranium mines in Algeria. However, an estimated 56,000 tons of uranium has been found in deposits in provinces west of Hoggar and on the border between Algeria and Niger. Uranium rich areas were identified in Eglab, Ougarta, southern Tassili (Tin-Seririne basin), Tamart-N-Iblis and Timouzeline sectors, Tesnou zone (northwest) and north of Timgaouine before 2001, after which there has been almost no exploration or prospecting. http://www.sipri.org/contents/expcon/cnsc3alg.html
http://www.worldenergy.org/wec-geis/publications/reports/ser/uranium/uranium.asp

Reprocessing
Since the early 1990s there have been suspicions of Algeria keeping a nuclear fuel reprocessing plant next to the Es Salam reactor in Ain Oussera, where plutonium usable for weapons possibly could have been separated from the reactor's spent fuel. In 2001, satellite photographs of the facility were analyzed and buildings that could be part of a reprocessing program were identified, including a hot cell laboratory, an isotope production facility, and a suspected reprocessing plant.
http://projects.sipri.se/nuclear/cnsc4alg.htm

2. Fissile Material Holdings

Cumulative Plutonium Discharges from Civilian Power Reactors
The 15-megawatt Es Salam reactor has the theoretical capacity to produce as much as 3 kilograms of weapon-grade plutonium a year.
http://www.thebulletin.org/article.php?art_ofn=mj01albright

3. Nuclear Activities

Research Centers
CERIST: Centre de Recherche sur l'Information Scientifique et Technique
http://www.radwaste.org/research.htm

Nuclear Cooperation
Argentina: Algeria purchased an Argentine-designed research reactor with 20% enriched U-235 fuel In

1985. Algeria was involved in negotiations with Argentina regarding the purchase of pressurized heavy water reactor. http://projects.sipri.se/nuclear/cnsc1alg.htm

China: China has been Algeria's main supplier of nuclear technology. A secret accord was signed between the countries in 1983. In 1991, the Chinese-assisted construction of a nuclear complex including a heavy water reactor with ability to produce military grade plutonium, and hot cell and radioisotope laboratories was uncovered.

IAEA proceeded with inspections of the facilities and found little proof of a weapons program. Algeria subsequently acceded to the NPT and signed the CTBT.
http://www.isis-online.org/publications/algeria/elpais.html

Niger: Algeria purchased 150 tons of uranium concentrate from Niger in 1984.
http://www.fas.org/nuke/guide/algeria

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
Comprehensive Nuclear Test-Ban Treaty, 11 July 2003
Nuclear Non-Proliferation Treaty, 12 January 1995
Outer Space Treaty, 27 January 1992
Sea Bed Arms Control Treaty, 27 January 1992
Treaty of Pelindaba, 11 February 1998

Algeria has not signed the IAEA Additional Protocol.

Multilateral Groups
Conference on Disarmament

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Negative security assurances: "Non-Nuclear Weapon States have the right to benefit, unconditionally, from guarantees against the use or threat of use, in all circumstances, of nuclear weapons. My delegation firmly believes that security assurances are right of non-nuclear weapon States, consecrated in paragraph 4 of Article 2 of the UN Charter, and by paragraph 12 of the preamble to the NPT, regarding the threat or the use of force... Security assurances constitute an essential element in the nuclear non-proliferation regime and they help to address the inequalities and the insufficiencies of the NPT." - **Statement during the Cluster 1 debate of the Third Preparatory Committee of the 2005 NPT Review Conference, May 2004.** http://www.reachingcriticalwill.org/legal/npt/prepcom04/algeriaCL1.pdf

Proliferation: "The existence of arsenals and the vertical proliferation of nuclear weapons violates the spirit and the letter (of the NPT)." - (*unofficial translation*) **Statement by Ambassador Baali to the Third Preparatory Committee of the 2005 NPT Review Conference, 26 April 2005.** http://www.reachingcriticalwill.org/legal/npt/prepcom04/algeria26.pdf

Disarmament: "The nuclear States have specific obligations and the first responsibility in the domain of nuclear disarmament. This was confirmed unequivocally by the International Court of Justice in their advisory opinion of July 1996."- **Statement by Ambassador Idriss Jazaïry to the Conference on Disarmament, 27 January 2005.** http://www.reachingcriticalwill.org/political/cd/speeches05/Jan27Algeria.pdf

Egypt

1. Location and capability of nuclear facilities

Egypt acquired its first nuclear reactor from the Soviet Union in 1961. Spent fuel from this reactor, too insignificant for a weapons program, was controlled by the USSR.

In the 1960s, an agreement with the US for the construction of 8 nuclear power plants fell through when the US unilaterally changed the terms of the agreement. This unmaterialized agreement prompted Egypt to sign the NPT in 1968 as a way to receive nuclear technology.

Today, Egypt still does not have operating nuclear power facilities, though Electricity Minister Hassan Youis expects Egypt's first nuclear power plant to be operational by 2010. In addition, Egypt continues serious work on developing nuclear potential designated for use in power engineering, agriculture, medicine, biotechnology, and genetics. http://www.globalsecurity.org/wmd/world/egypt/nuke.htm

Research Reactors **Power Reactors**- 0
Operational: 2
Shut down: 0
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Uranium Mines
Egypt's Nuclear Materials Authority estimates 15,000 tons of untapped uranium in Egypt, with explorations mostly focusing in the Eastern Desert and in Sinai.
http://www.worldenergy.org/wec-geis/publications/reports/ser/uranium/uranium.asp

Industrial incorporation of four explored uranium deposits is planned, including the extraction and enrichment of uranium for subsequent use as fuel for nuclear power plants.
http://www.globalsecurity.org/wmd/world/egypt/nuke.htm

Egypt is currently working towards the industrial incorporation of uranium deposits, which will involve uranium extraction and enrichment for use in power plants.
http://www.globalsecurity.org/wmd/world/egypt/nuke.htm

Fuel Fabrication
Egypt has no declared reprocessing capabilities, though some reprocessing related activities are conducted at the Atomic Energy Authority's facilities, including a site at Inshas.
http://projects.sipri.se/nuclear/cnsc5egy.htm

2. Fissile Material Holdings

Radioactive waste disposal
A repository for low- and intermediate-level wastes at Inshas was commissioned in 2000.
http://www.world-nuclear.org/waste/report99/annex2.htm

3. Nuclear Activities

Research Centers
Atomic Energy Authority Egyptian Nuclear Energy Authority
ICF: The Inshas Cyclotron Facility
NCRR:TThe National Center for Radiation Research and Technology
NPPA: Nuclear Materials Authority Nuclear Power Plants Authority

NRC: Nuclear Research Center
http://www.iaea.or.at/inis/ws/nuclear_authorities/egypt.html; http://projects.sipri.se/nuclear/cnsc5egy.htm

Nuclear Cooperation
Since 1990 Egypt has been one of eleven members of the Arab Power Engineering Organization. A number of Egyptian scientific projects are carried out under the aegis of the IAEA.

Russia: In early 2005, Egypt and Russia signed a new agreement to revive Egypt's plans for a nuclear power and desalination plant. http://www.world-nuclear.org/news/nl_jan-feb2005.htm

In 1961, Russia provided Egypt with a research reactor. Russia also serviced and supported a research reactor from Argentina, which started up in 1997. A feasibility study for a cogeneration plant for electricity and potable water at El-Dabaa, on the Mediterranean coast, has recently been undertaken.

China, South Korea: Nuclear cooperation agreements (2002) http://www.world-nuclear.org/nb/nb02/nb0219.htm

Argentina: In early 1992, a deal was made for Argentina to deliver an additional reactor with a capacity of 22 megawatts to Egypt.

UK, India: Agreements to provide assistance in training national cadres for scientific research and work on the country's atomic enterprises.
http://www.globalsecurity.org/wmd/world/egypt/nuke.htm

Jordan: Egypt agreed to assist in establishing a Jordanian Atomic Agency and training for radiological detection and survey staff. http://www.arabicnews.com/ansub/Daily/Day/010607/2001060735.html

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
Nuclear Non-Proliferation Treaty, 26 February 1981
Outer Space Treaty, 23 January 1968
Treaty of Pelindaba, not yet deposited

Egypt has not yet signed the IAEA Additional Protocol.

Multilateral Groups
Conference on Disarmament

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Nuclear Weapons: "The main threat to the Middle East, and perhaps adjacent regions as well, flows from the continued acquisition by some of nuclear weapons. While we all agree on the dangers of those weapons, and the need to halt their proliferation, as a step towards their elimination and ridding humanity of the threats they pose, the international community continues to be selective in addressing the question of WMD. The international community seeks to impose a firm regime to monitor the imports of all member states of the non-proliferation regime, among them are all the Arab states. The same international community, however, turns a blind eye at the continued stockpiling of nuclear capabilities by one party in the region." - **Statement by H.E. Mr. Ahmed Aboul Gheit, Minister for Foreign Affairs, to the 59th session of the General Assembly, 24 September 2004**.
http://www.un.org/webcast/ga/59/statements/egyeng040924.pdf

Disarmament: "[a]n unequivocal commitment was undertaken by all NPT States Parties in 2000 to the accomplishment of nuclear disarmament and thirteen steps were agreed upon to lead us to this objec-

tive. The responsibility of the five nuclear weapon States to pursue the elimination of their nuclear arsenals is both a moral and a legal one, and it is within this logic that Egypt... addresses, among other issues, the laxity that has crept into nuclear disarmament and non-proliferation efforts since May 2000." - **Statement by Counsellor Alaa Isaa addressing the 57th session of the General Assembly First Committee on Disarmament and International Security, 7 October 2002**. http://www.reaching-criticalwill.org/political/1com/1com02/speeches/2/egy100702.pdf

Nuclear weapon-free zones: "We welcome the endeavors of the five Central Asian States to establish a nuclear-weapon-free zone in their region which we hope will add impetus to the establishment of such zones in other areas of the world... we shall continue to pursue...in the General Assembly...a resolution calling for the establishment of a nuclear-weapon-free-zone in the Middle East and another that calls upon Israel, the only state in the Middle East that has not yet acceded to the NPT, to accede to the Treaty."- **Statement by Counsellor Alaa Isaa addressing the 57th session of the General Assembly First Committee on Disarmament and International Security, 7 October 2002**. http://www.reachingcriticalwill.org/political/1com/1com02/speeches/2/egy100702.pdf

Iran

1. Location and capability of nuclear facilities

Iran's nuclear program commenced in the 1950s with the development plans of a large-scale nuclear power program, capable of producing 23,000 megawatts of nuclear power by the end of the century. Progress on this program was continually stalled by political and security upheavals; the eight-year war with Iraq brought it to a screeching halt.

Under Khomeini, Iran's nuclear program has steadily grown on all fronts. Not all aspects of this program were disclosed to the IAEA, however; foreign intelligence, satellite images and dissident expatriated groups maintain that Iran is pursuing a covert weapons program- an accusation that Iran staunchly denies.

By 2003, Iran admitted to having construction plans for two enrichment facilities, a heavy water production plant and a fuel fabrication plant, as well as having undertaken research into conversion and enrichment activities. On 19 August 2003, Iran began testing a ten-machine cascade at the Pilot Fuel Enrichment Plant at Natanz with uranium hexafluoride.

Concerns over Iran's nuclear program mounted, leading Iran to sign the IAEA Additional Protocol on 18 December 2003; it has not yet ratified, though it pledged to apply the Protocol pending entry-into-force.

If Iran's designs to develop a complete nuclear fuel cycle continue as planned, it would have the capability to produce nuclear weapons if it were to choose to do so.
http://www.nti.org/e_research/profiles/Iran/1819_1822.html

Power Reactors
Operational: 0
Under Construction: 2
http://www.iaea.or.at/programmes/a2/
http://www.nti.org/e_research/profiles/Iran/index.html

Research Reactors
Operational: 5
Shut down: 0
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Fuel Fabrication
Natanz- uranium enrichment facilities
Parchin- suspected uranium enrichment facilities
Lavisan- suspected nuclear program facilities
Arak- heavy water production
Darkhovin- suspected underground nuclear weapons facility of unspecified nature
Esfahan- research center (Nuclear Technology/Research Center), University of Esfahan, research reactors, suspected hexaflouride plant, missile production facilities,
http://www.fas.org/nuke/guide/iran/facility/index.html

Uranium Mines
Saghand, Yazd province- under construction
Gchine, Bandar Abbas- operational as of July 2004
http://www.globalsecurity.org/wmd/world/iran/gchine.htm
http://www.wisconsinproject.org/countries/iran/nuke2003.htm

2. Fissile Material Holdings

Radioactive waste disposal
The Atomic Energy Organization of Iran (AEOI) is responsible for waste management and disposal. Waste disposal facilities include Anarak, Esfahan, and Qom.

http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/CNPP_Webpage/countryprofiles/Iran/Iran2003.htm

3. Nuclear Activities

Research Centers
Amirkabir University of Technology
Bouali-Sina University
Guilan University
Esfahan University
Khajch-Nasi-Toosi University of Technology
Shiraz University Shiraz University of Medical Sciences
Tehran University
University of Mashhad
Iran University of Science and Technology
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2002/index.htm

Nuclear Cooperation
US: 1974 contract for construction of nuclear plants and supply of nuclear fuel
Germany: 1976 contract for construction of nuclear plants and supply of nuclear fuel
France: 1976 purchase of Tricastin uranium enrichment plant, operated by European consortium
- 1977 contract for construction of nuclear plants and supply of nuclear fuel
Namibia: 1976 purchase of RTZ uranium mine in Rossing
South Africa: 1976 contract for the purchase of uranium yellowcake and technical training.
- Another agreement in 1988-89 for the provision of large quantities of yellow cake remains in dispute; European officials claim the deal went through; South Africa insists it had cancelled the deal.
Pakistan: 1987 agreement for long-term nuclear cooperation and technical training
Argentina: A 1987 agreement from Argentina's Applied Research Institute to provide Iran with a pilot-scale mill- later cancelled in 1992 by Argentine President Carlos Menem
- Another uranium enrichment and heavy water production facilities agreement was blocked by the US
China: 1990 agreement for long-term nuclear cooperation, including technical training, provision of a 27KW miniature neutron source reactor and two 300MW Qinshan power reactors;
- Later, Iran and China were in negotiations for a plutonium-producing research reactor, two power reactors and a uranium conversion plant; the agreement was blocked by the US.
- In 1997, China's Beijing Research Institute of Uranium Geology aided Iran with uranium exploration.
- In February 2003, Iran admitted to having imported from China 1.8 tons of nuclear material used to manufacture uranium metal.
Germany: In 1991, Germany's Leybold negotiated to sell Iran a vacuum arc furnace for fuel fabrication
UK: The UK firms Air Products, British Nuclear Fuels, Fisions, and Leeds & Northtrup allegedly sold Iran fluorine gas.
Russia: 1995 agreement to complete construction of Bushehr reactors as well as three additional reactors at the site. Another agreement for a heavy water production plant was blocked by the US.
http://www.nti.org/e_research/profiles/Iran/1819_1822.html
http://cns.miis.edu/research/wmdme/flow/iran/mining.htm
http://cns.miis.edu/research/wmdme/flow/iran/fuelf.htm
http://cns.miis.edu/research/wmdme/flow/iran/milling.htm

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
Comprehensive nuclear Test-Ban Treaty, 24 September 1996

Nuclear Non-Proliferation Treaty 5 March 1970
Outer Space Treaty 27 January 1967
Sea-Bed Treaty 11 February 1971

Iran signed the Additional Protocol on 18 December 2003 but has not yet ratified.

Multilateral Groups
Conference on Disarmament

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Disarmament and Proliferation: "... one particular area that requires resolute action by the international community is the existence and proliferation of weapons of mass destruction... Iran feels very strongly about the absolute imperative of a collective and rule based multilateral campaign to eradicate all these weapons and to prevent the proliferation of nuclear weapons as an interim measure. This must be done by the universal application of disarmament and non-proliferation instruments in a comprehensive and non-discriminatory manner." - **Statement by H.E. Dr. Kamal Kharrazi, Minister for Foreign Affairs to the 59th session of the General Assembly, 24 September 2004.**
http://www.un.org/webcast/ga/59/statements/iraneng040924.pdf

Universality: "The (arms control) multilateral instruments must become truly universal and the rights and obligations of all must be scrupulously enforced. Access to technology for peaceful purposes is the only true incentive for the universality of these instruments." - **Statement by H.E. Dr. Kamal Kharrazi, Minister for Foreign Affairs to the 59th session of the General Assembly, 24 September 2004.** http://www.un.org/webcast/ga/59/statements/iraneng040924.pdf

Nuclear weapon-free zone: "Since 1974 when Iran first raised the idea of establishing a Nuclear Weapon Free-Zone in the Middle East, the countries of the region have spared no efforts to make such a cause come true...We believe the 2005 Review Conference provides another opportunity to register the international demand for Israel to accede to the NPT and put its nuclear facilities under the IAEA safeguareds system. Should this happen, the NPT would get a major step closer to real universality and the ground would be paved for the establishment of a nuclear weapon free-zone in the voltaile Middle East Region."- **Statement by H.E. Gholam Ali Khoshroo, Deptuy Foreign Minister for Legal and International Affairs to the Third Preparatory Committee of the 2005 NPT Review Conference, 27 April 2004.** http://www.reachingcriticalwill.org/legal/npt/prepcom04/iran27.pdf

Negative security assurances: "The question of the security of Non-Nuclear Weapon States against the use or threat of use of nuclear weapons by Nuclear Weapon States has been an issue of concern since the very inception of the NPT. The unilateral declarations registered as UN Security Council documents and the subsequent Resolution were fundamental prerquisites for sealing the indefinite extension of the Treaty...However, recent developments and the latest posture review by a Nuclear Weapon State have proved that unilateral statements fall too short of providing legally binding security assurances against the use or threat of use of nuclear weapons. Such reversals in nuclear policies of Nuclear Weapon States blow the very basis of previous agreements and would certainly run contrary to the promotion of full implementation of the Treaty." - **Statement by H.E. Gholam Ali Khoshroo, Deptuy Foreign Minister for Legal and International Affairs to the Third Preparatory Committee of the 2005 NPT Review Conference, 27 April 2004.**
http://www.reachingcriticalwill.org/legal/npt/prepcom04/iran27.pdf

Argentina

1. Location and capability of nuclear facilities

Two nuclear reactors generate about 10% of Argentina's electricity. Since the 1950s, Argentina has pursued nuclear energy and technological development programs.

In the 1970s, Argentina and Brazil were engaged in a covert nuclear arms race. With the fall of the military regime in the 1980s and implementation of nuclear confidence-building agreements with Brazil, Argentina began the transition into non-proliferation, bringing the nuclear program under civilian auspices. The first commercial nuclear power reactor has operated since 1974, and today the Argentinean electricity production is largely privatized.

The Argentine government announced in May 2004 that, as part of its plan for the country's future energy strategy, it would organize the completion of the unfinished Atucha-2 unit, using public funds. Construction of a pressurized heavy water reactor started in 1981, but the project was suspended in 1994, with some 80% of the work completed. Negotiations are underway with original project contractor Siemens of Germany and Framatome ANP. Once started, the completion of Atucha-2 will take about 52 months and cost an estimated US$500 million.
http://www.world-nuclear.org/nb/nb05/latestnews.htm; http://www.world-nuclear.org/info/inf96.htm;
http://www.ceip.org/programs/npp/nppargn.htm; http://www.nti.org/e_research/profiles/Argentina/index.html

Power Reactors
Operational: 2
Shut down: 0
Decommissioned: 0
Under Construction: 1
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 5
Shut down: 2
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Uranium Enrichment
The construction of Pilcaniyeu was initiated in 1978 by the military junta. In 2000 the enrichment plant was the first plant in the world using gaseous diffusion technology to be placed under IAEA safeguards. http://www.ceip.org/programs/npp/nppargn.htm
http://www.globalsecurity.org/wmd/world/argentina/pilcaniyeu.htm

Uranium Mines

Mine	Location	Status
Sierra Pintada	Mendoza	active/proposed
San Rafael	Mendoza	active/proposed
Cerro Solo	Chubut	active/proposed
Don Otto	Salta	decommissioned
Schlagintweit	Cordoba	decommissioned
La Estela	San Luis	decommissioned
Dr. Baulies	Mendoza	decommissioned
Huemul	Mendoza	decommissioned
Los Adobes	Chubut	decommissioned
Los Colorados	La Rioja	decommissioned

http://www.antenna.nl/wise/uranium/uddsam.html#AR

Reprocessing Facilities
In the late 1960s, the Ezeiza facility was built to extract plutonium from spent reactor fuel. The facility was closed in 1973; in 1978, construction of a second reprocessing facility at Ezeiza with a higher

capacity began. Economic constraints and political pressure from the US put an end to the project in 1990. http://www.ceip.org/programs/npp/nppargn.htm; http://www.antenna.nl/wise/uranium/efac.html
http://npc.sarov.ru/english/digest/22001/appendix8.html

2. Fissile Material Holdings

Separated Civil Plutonium- 10 tons (end 2002)
http://www.isis-online.org/global_stocks/civil_pu.html#table7

Radioactive waste disposal
Low- and intermediate-level waste: Low- and intermediate-level wastes, including spent fuel from the research reactors, are handled at Ezeiza.

High-level waste: Spent fuel is stored at each power plant. There is a dry storage at the Embalse plant.
http://www.world-nuclear.org/info/inf96.htm

3. Nuclear Activities

Research Centers
CAB: Centro Atómico Bariloche - Instituto Balseiro
CAC: Centro Atómico Constituyentes
CAE: Centro Atómico Ezeiza
Invap
Pierre Auger Project
Universidad Nacional de Cuyo
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2002/index.htm; http://www.radwaste.org/research.htm

Nuclear Cooperation
US: US designed a research reactor, RA-1, built in 1958 at Constituyentes. The construction of the reactor sparked the Argentina-Brazil nuclear rivalry.

In the mid 1990s, US and Argentina signed agreements for nuclear energy cooperation, including exchange of information, cooperative research and development between nuclear research laboratories. http://www.ceip.org/programs/npp/nppargn.htm; http://usembassy.state.gov/posts/ar1/wwwhest5.html

West Germany: In 1968, Argentina purchased a reactor from a West German company, Siemens, for the Atucha I nuclear power station without condition of safeguards.
http://www.ceip.org/programs/npp/nppargn.htm; http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2002/index.htm

Australia: In 2001, negotiations of a Nuclear Cooperation Agreement between Australia and Argentina enabled the construction of a nuclear reactor in Australia and allowed for the export of Australia's radioactive waste reprocessing. http://www.foe.org.au/mr/mr_21_12_01.htm

Egypt: In 1996, Argentina constructed a nuclear reactor in Egypt with capabilities of producing sufficient fissile material for nuclear weapons production.
http://www.wisconsinproject.org/countries/egypt/nuke.html

Egypt, Algeria, Australia: Argentina has exported nuclear reactors for research and radioisotope production to Egypt, Algeria, and Australia. http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2002/index.htm

Iran: In 1993, Argentina supplied Iran with 115.8 kg of 20% enriched uranium fuel.
http://www.idds.org/acr2003/453e2MEN03.html

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
Comprehensive Nuclear Test-Ban Treaty, 4 December 1998
Convention on Nuclear Safety, 16 July 1997
Convention on Physical Protection of Nuclear Material, 6 May 1989
Convention on Supplementary Compensation for Nuclear Damage, 14 November 2000
Nuclear Non-proliferation Treaty, 10 February 1995
Outer Space Treaty, 26 March 1969
Treaty of Tlatelolco, 18 January 1994

Argentina has not yet signed the IAEA Additional Protocol.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation
Missile Technology Control Regime
Nuclear Suppliers Group
Zangger Committee

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

WMD: "We continue to worry about the persistence of the risk of proliferation of weapons of mass destruction because they threaten the internal security of States as well as global stability. In this millenium, the renouncement of weapons of mass destruction constitutes the highest priority."
(*unofficial translation*) - **Statement by Ambassador Alberto D'Alotto to the 59th session of the General Assembly First Committee on Disarmament and International Security, 5 October 2004.**
http://www.reachingcriticalwill.org/political/1com/1com04/statements/Argentina.pdf

Universalization: "... In the field of disarmament my country will tirelessly continue advocating for all States to eradicate arms of mass destruction and will continue actively working for the strict enforcement of obligations to different treaties on this subject in order to reach universality."(*unofficial translation*) -**Statement by Ambassador Arnoldo Listre, Permanent Representative of Argentina to the 56th session of the General Assembly 24 September 2001.**
http://www.reachingcriticalwill.org/political/1com/pre1com.html

Brazil

1. Location and capability of nuclear facilities

Brazil's research in the nuclear field began as early as the 1930s with nuclear fission research followed by the discovery of uranium deposits by mid-decade. Throughout the 1940s, Brazil's nuclear program grew, mostly through technology transfers from the United States. By 1956, Brazil decided to pursue an independent, indigenous program without control and oversight by the US. In 1965, Brazil built its first indigenous research reactor in Rio de Janeiro, though the US supplied the medium-grade enriched uranium and maintained strict control over their construction, in exchange for continued supplies of natural uranium to the US.

Brazil and Argentina embarked on a bilateral nuclear arms race in the 1970s and 80s. Through technology transfers from West Germany, which did not require IAEA safeguards, Brazil pursued a covert nuclear weapons program, replete with enrichment facilities (including a large ultracentrifuge enrichment plant and several laboratory-scale facilities), a limited reprocessing capability, a missile program, a uranium mining and processing industry, and fuel fabrication facilities.

By 1987, with Brazil able to enrich uranium to 20%, many predicted a Brazilian nuclear weapon by the end of the century. In 1990, President Fernando Collor de Mello symbolically closed a test site at Cachimbo, in Pará and exposed the military's secret plan to develop an atom bomb.

Through a series of agreements, Brazil and Argentina renounced their nuclear rivalry. On 13 December, 1991, they signed the Quadripartite agreement, at the IAEA headquarters, allowing for full-scope IAEA safeguards of Argentine and Brazilian nuclear installations.

Today, Brazil has the most advanced nuclear capabilities in Latin America, with a multi-faceted fissile material production program and the navy, air force and army involved in various sectors of its nuclear research and development program. Until 2009, Brazil plans to invest US$8.2 billion annually to increase the capacity of generation of electric energy in the country.
http://www.globalsecurity.org/wmd/world/brazil/nuke.htm

Power Reactors
Operational: 2
Planned: 0
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 4
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Uranium Mines
Brazil embarked on systematic prospecting and exploration of radioactive minerals in 1952. From 1974 to 1991, the total amount spent in uranium exploration was equivalent to US$150 million. Brazil has been producing uranium since 1982, with untapped uranium deposits believed to cover 50% of the Brazilian territory, which is home to the fifth-largest known natural reserves of uranium.
http://www.globalsecurity.org/wmd/world/brazil/nuke.htm
http://www.antenna.nl/wise/uranium/uosam.html
Rohter, Larry, "Brazil Pressing for Favorable Treatment on Nuclear Fuel," *New York Times*, 25 September 2004
http://www.nytimes.com/2004/09/25/international/americas/25brazil.html

Uranium Enrichment
In 2003, a new enrichment plant for uranium opened at Resende; production began in early 2004, though agreement on verification with the IAEA was not reached until November.
http://www.antenna.nl/wise/uranium/eproj.html#BR

The uranium enrichment program is partly operated and controlled by the Brazilian Navy, indicating possible military, as well as civilian applications. In their public statements, navy and civilian officials

have suggested that Brazil sees uranium enrichment as a promising source of income that could ease those problems.
Rohter, Larry, "Brazil Pressing for Favorable Treatment on Nuclear Fuel," *New York Times*, 25 September 2004 http://www.nytimes.com/2004/09/25/international/americas/25brazil.html

2. Fissile Material Holdings

Cumulative plutonium discharges from civilian power reactors- 1.9 tons
http://www.isis-online.org/global_stocks/civil_pu.html#table7

Radioactive waste disposal
Over the past 40 years, Brazil has generated about 14,000 cubic meters of nuclear waste, including material from nuclear power plants and medical use. A radioactive waste accident in 1987 in Goiânia, wherein 4 people died and at least 200 were contaminated, spurned greater care of radioactive wastes in Brazil.

Nuclear waste is now disposed of in four temporary depositories owned by the National Commission of Nuclear Energy (CNEN). The goverment continues to explore options for the construction of permanent deposit sites for radioactive waste. http://ehp.niehs.nih.gov/docs/2000/108-11/focus.html

3. Nuclear Activities

Research Centers
CDTN: Centre for Nuclear Technology Development
CNEN: National Nuclear Energy Commission
CBPF: Centro Brasileiro de Pesquisas Fisicas
CENA: Centro de Energia Nuclear na Agricultura
IPEN: Institute for Energy and Nuclear Research
IEN: Institute for Nuclear Engineering
IRD: Institute for Radiation Protection and Dosimetry
LNLS: Laboratorio Nacional de Luz Sincrotron
http://www.radwaste.org/research.htm; http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2002/index.htm

Nuclear Cooperation
US: In 1940, President Getúlio Vargas signed an agreement with the United States for cooperative mining, including mining for uranium and monazite. During the 1940s, Brazil signed four agreements with the United States relating to mining and technology transfers.

In June 2003, the United States Department of Energy and the Brazilian Ministry of Science and Technology signed a bilateral agreement jointly conduct research and development in the field of advanced reactor developments for future-generation nuclear energy systems; advanced reactor fuel and reactor fuel cycle-integration; life management and upgrading of current operating reactors; advanced fuel and material irradiation and use of experimental facilities; environmental and safety issues related to new reactor and fuel cycle technologies; and fundamental areas of nuclear engineering and science.

West Germany: 27 June 1975 agreement transferred eight nuclear reactors from West Germany, as well as a commercial-scale uranium enrichment facility, a pilot-scale plutonium reprocessing plant, and Becker "jet nozzle" enrichment technology. This agreement was the first to ensure the transfer of technology for a complete nuclear fuel cycle, including enrichment and reprocessing. It formed the basis for Brazil's covert nuclear weapons program.

Russia: In September 1994, Russia and Brazil agreed to cooperate in the development of nuclear ener-

gy, including nuclear safety. During talks in April 1995, the two sides considered the construction of small nuclear power plants in Brazil using low-capacity Russian reactors like those used on icebreakers. http://www.globalsecurity.org/wmd/world/brazil/nuke.htm
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2002/index.htm

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
Comprehensive Nuclear Test-Ban Treaty, 24 July 1998
Convention on Nuclear Safety, 2 June 1997
Convention on the Physical Protection of Nuclear Material, 8 February 1987
Nuclear Non-Proliferation Treaty, 18 September 1998
Outer Space Treaty, 5 August 1963
Sea Bed Arms Control Treaty, 4 April 1988
Treaty of Tlatelolco, 29 January 1968, Amended 30 May 1994

Brazil has not yet signed the IAEA Additional Protocol.

Multilateral Groups
Nuclear Suppliers Group
Missile Technology Control Regime

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Non-proliferation: "The growing emphasis on strengthening non-proliferation mechanisms in the current international scene must be accompanied by similar efforts in terms of disarmament and enhancement of international cooperation for the development of nuclear technology for peaceful purposes. Instead, regretfully, we see that new rationales are sought for the maintenance or development of new and more sophisticated nuclear weapons. The unfortunate consequence of such development is that countries may be led to see nuclear weapons as security enhancers.

"In order to curb proliferation, a number of countries believe that by avoiding time-consuming diploamatic negotiations and resorting to arrangements of limited participation and more flexible implementation they will address sensitive questions in a more efficient manner. In Brazil's view, ad hoc mechanisms cannot replace the efficiency and legitimacy of multilaterally negotiated instruments. Mechanisms negotiated among a relatively reduced number of countries tend to hamper even further credibility of the existing instruments we should strive to preserve." - **Statement at the 59th session of the General Assembly First Committee on Disarmament and International Security, 7 October 2004.** http://www.reachingcriticalwill.org/political/1com/1com04/statements/Brazil.PDF

Nuclear technology: "...the exercise of the right of all NPT parties to develop research, production and use of nuclear energy for peaceful purposes without discrimination cannot be in any way jeopardized by attempts to rewrite or reinterpret Article IV. In the same vein, no new obligations under Article III can come to existence without proper and explicit decision by the membership of the Treaty."
- **Statement at the 59th session of the General Assembly First Committee on Disarmament and International Security, 7 October 2004.**
http://www.reachingcriticalwill.org/political/1com/1com04/statements/Brazil.PDF

Practical Steps: "...the 'unequivocal undertaking' made by the nuclear-weapon States to accomplish the total elimination of their nuclear arsenals and implement 13 agreed steps toward this end was hailed as a major outcome. The international community should resist attempts to downgrade the degree of commitment to these measures... The fulfillment of the 13 steps on nuclear disarmament agreed dur-

ing the 2000 Review Conference have been significantly- one could even say systematically- challenged by action and omission, and various reservations and selective interpretation by nuclear weapon States. Disregard for the provisions of Article VI may ultimately affect the nature of the fundamental bargain on which the Treaty's legitimacy rests." -**Statement by H.E. Mr Sérgio de Queiroz Duarte during the Cluster I debate of the Third Preparatory Committee of the 2005 NPT Review Conference, 3 May 2005.** http://www.reachingcriticalwill.org/legal/npt/prepcom04/BrazilCL1.pdf

Negative Security Assurances: "International peace and security can only benefit from the total elimination of nuclear weapons. But while those weapons exist, it is necessary that unconditional negative security assurances be granted to non-nuclear-weapon States. In this regard, reservations and interpretations by nuclear weapon countries of their obligations contained in the Protocol II of the Tlatelolco Treaty should be revised or withdrawn..." -**Statement by H.E. Mr Sérgio de Queiroz Duarte during the Cluster I debate of the Third Preparatory Committee of the 2005 NPT Review Conference, 3 May 2005.** http://www.reachingcriticalwill.org/legal/npt/prepcom04/BrazilCL1.pdf

Canada

1. Location and capability of nuclear facilities

Nuclear energy constitutes approximately 14% of the nation's energy supply, with a uranium requirement for Canada's nuclear power reactors of 1,692 tons in 2004.

Federal energy policy encourages a market-driven approach and energy programs focus on developing new alternative sources of energy, preservation of the environment and nuclear energy. Nuclear energy development is encouraged and subsidized by the Canadian government. Since 1969, Canada has been an exporter of most energy forms, with 91% of its exports going to the US.
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2002/index.htm
http://www.world-nuclear.org/info/reactors.htm

Power Reactors
Operational: 17
Shut down: 8
Under Construction: 1
Planned: 2
http://www.iaea.or.at/programmes/a2/
http://www.world-nuclear.org/info/reactors.htm

Research Reactors
Operational: 8
Shut down: 5
Decommissioned: 3
Under Construction: 2
Planned: 1
http://www.iaea.or.at/worldatom/rrdb/

Nuclear Facilities
Cameco-owned and controlled uranium hexafluoride conversion facilities are located in Port Hope, Ontario and have the capacity to produce 10,500 metric tons of uranium per year.

Zircatec Precision Industries-owned and controlled heavy water reactor fuel fabrication facilities are located in Port Hope, Ontario and have the capacity to produce 1,500 metric tons per year.

General Electric Canada-owned and controlled heavy water reactor fuel fabrication facilities are located in Peterborough, Ontario and have the capacity to produce 1,200 metric tons per year.
http://www.antenna.nl/wise/uranium/efac.html

Uranium Mines
Canada is the world's largest producer of uranium, producing about one-third of the world's total.

Uranium Mines continued

Mine	Location	Status
Agnew Lake	Ontario	reclamation completed
Alexandra	Saskatchewan	no information
Andrew Lake deposit	Saskatchewan	no information
Asiak River	Nunavut	no information
Baker Lake	Nunavut	exploration ongoing
Bancroft	Ontario	closed

Mine	Location	Status
Beaverlodge	Saskatchewan	abandoned
Black Lake	Saskatchewan	no information
Boomerang Lake	Nunavut	exploration ongoing
Boulder Train	Nunavut	no information
Brown	Saskatchewan	no information
Buckles	Ontario	reclamation completed

Uranium mines continued

Mine	Location	Status
Can-Met	Ontario	closed
Cigar Lake	Saskatchewan	under development
Collins Bay	Saskatchewan	no information
Compass Lake	Saskatchewan	no information
Coppermine River	Nunavut	no information
Crawford	Saskatchewan	private property/no info
Crawford Lake	Saskatchewan	private property/no info
Cree Extension	Saskatchewan	private property/no info
Cyprian Lake	Saskatchewan	no information
Dawn Lake	Saskatchewan	prospection halted
Denison	Ontario	no information
Dieter Lake	Quebec	private property/no info
Dominique-Janine	Saskatchewan	operating
Douglas	Saskatchewan	no information
Eagle Point	Saskatchewan	operating
Erica	Saskatchewan	no information
Gunnar	Saskatchewan	abandoned
Henday Lake	Saskatchewan	no information
Hidden Bay	Saskatchewan	no information
Hocking Lake	Saskatchewan	no information

Mine	Location	Status
McClean Lake Mill	Saskatchewan	operating
McClean Lake Mine	Saskatchewan	idle
Michelin Deposit	Labrador	private property/no info
Midwest project	Saskatchewan	under development
Milliken	Ontario	closed
Moore Lake	Saskatchewan	private property/no info
Moran Lake Deposit	Labrador	exploration ongoing
Mountain Lake	Nunavut	exploration ongoing
Nisto	Saskatchewan	abandoned
Nordic	Ontario	reclamation completed
Panel	Ontario	reclamation completed
PEC Uranium Deposit	Nunavut	no information
Perch River	Saskatchewan	no information
Port Radium	Nunavut	abandoned
Post Hill Deposit	Labrador	private property/no info
Pronto	Ontario	operating
Quirke	Ontario	reclamation completed
RAE	Alberta	no information
Rarock	Nunavut	abandoned
Riou Lake	Saskatchewan	no information

2. Fissile Material Holdings

Mine	Location	Status
Hump Lake	Saskatchewan	no information
Jasper	Saskatchewan	no information
Kernaghan Lake	Saskatchewan	no information
Key Lake mill	Saskatchewan	operating
Key Lake mine	Saskatchewan	closed
Lacnor	Ontario	reclamation completed
Lazy Edward Bay	Saskatchewan	private property/no info
Lorado	Saskatchewan	abandoned
Mazenod Lake	Nunavut	no information
McArthur River Mine	Saskatchewan	operating

Mine	Location	Status
Rocky Brook	Newfoundland	private property/no info
Russell Lake	Saskatchewan	no information
Serendipity Lakes	Saskatchewan	no information
Shea Creek	Saskatchewan	exploration ongoing
Spanish American	Ontario	no information
Stanleigh	Ontario	reclamation ongoing
Stanrock	Ontario	reclamation completed
Virgin River	Saskatchewan	no information
Yalowega Lake	Saskatchewan	prospection halted

Irradiated Civil Plutonium- 130 tons
http://www.isis-online.org/global_stocks/plutonium_watch2004.html

Radioactive waste disposal
Low-level waste: Atomic Energy of Canada Limited (AECL) stores some solid low-level radioactive wastes at its Chalk River Laboratories in Ontario. In 2001, AECL constructed a new facility for packaging and storing solid LLW at its Chalk River Laboratories (CRL), designed to hold up to two years of wastes.

High-level waste: HLW is stored in a pool of water at the reactor for six years before being transferred to dry storage in concrete containers, also at the reactor site. AECL has developed the MACSTOR (Modular Air-Cooled STORage) dry used fuel storage system, concrete units with a double containment system.

AECL has also been studying a new "waste disposal concept" in Manitoba- a single facility with a vault about 500 to 1,000 metres deep in "stable rock formations". The vault would be a network of horizontal tunnels and disposal rooms, similar to a conventional hard rock mine.
http://www.aecl.ca/index.asp?menuid=500&miid=545&layid=3&csid=302

3. Nuclear Activities

Research Centers
AECL: Atomic Energy of Canada Ltd
Canadian Water Network

Centre for Nuclear Energy Research
CERI: Canadian Energy Research Institute
CLS: Canadian Light Source
CNF: Canadian Neutron Facility
CTN: Canadian Technology Network
GSC Airborne Geophysics Section
ICLDRR: International Centre for Low Dose Radiation Research
IREQ: Institute de recherche d'Hydro Québec
Kinetrics
LAFI: Laboratoire des Faisceaux d´lons
NRC: National Research Council
NSERC: Natural Sciences & Engineering Research Council
Neutron Program for Materials Research
OHT: Ontario Hydro Technologies
SNO: Sudbury Neutrino Observatory
TRIUMF
http://www.radwaste.org/research.htm

Nuclear Cooperation
Canadian nuclear cooperation is subject to the 1994 Export Controls on the Nuclear and Nuclear-related Dual-use Equipment, Materials and Related Technology:

Since 1974 Canada has undertaken nuclear cooperation only with those Nuclear Weapons States and Non-Nuclear Weapons States that have signed a Nuclear Cooperation Agreement (NCA) with Canada. The NCA contains several assurances including:

- A non-explosive use commitment;
- A provision for fall-back safeguards;
- Retransfer, enrichment and reprocessing controls; and,
- Assurance of adequate physical protection measures.

Since 1976 Canada has engaged in nuclear cooperation only with NNWS that have ratified the NPT or have taken an equivalent binding step and accepted IAEA safeguards on the full scope of their nuclear activities. http://www.dfait-maeci.gc.ca/trade/eicb/notices/ser72-en.asp

The states for which Canada has provided nuclear technology and materials include:

US: 65% of Canada's uranium exports go to the US.

India: Canada assisted India with the construction of two reactors based on the CANDU design and a research reactor (CIRUS) based on the NRX design. Canada ceased cooperation with India in 1974, when India tested its first nuclear device using plutonium from the CIRUS research reactor.

Pakistan: Canada supplied a CANDU-type reactor to Pakistan in 1964 and currently provides limited safety assistance through the CANDU Owners Group. Canada terminated all other nuclear cooperation with Pakistan in the early 1970s when Pakistan did not agree to meet Canada's non-proliferation policy requirements.

China: Canada supplied two CANDU-type reactors to China in 2002 and 2003 under a $4 billion contract between Atomic Energy of Canada Limited, Crown Corporation and China National Nuclear Corporation.

South Korea, Argentina and Romania: All purchased CANDU reactors from Canada.

Bilateral Nuclear Cooperation Agreements: Canada has nuclear cooperation agreements with the following countries: Argentina, Australia, Brazil, China, Colombia, Czech Republic, Egypt, Euratom, Hungary, Indonesia, Japan, Republic of Korea, Lithuania, Mexico, Philippines, Romania, Russia, Slovenia, Slovakia, Switzerland, Taiwan, Turkey, Ukraine, Uruguay, United States.
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2002/index.htm

4. International Non-proliferation Efforts

Canada is also a participant in the G8 Global Partnership against the spread of weapons and materials of mass destruction, launched in Kananaskis, Canada 2002.

Treaties Signed and Ratified, date of deposit
Biological and Toxin Weapons Convention, 18 September 1972
Chemical Weapons Convention, 26 September 1995
Comprehensive Nuclear Test-Ban Treaty, 18 December 1998
Nuclear Non-Proliferation Treaty, 8 January 1969
Outer Space Treaty, 10 October 1967
Sea Bed Treaty, 18 May 1972

Canada ratified the IAEA Additional Protocol 8 September 2000.

Multilateral Groups
Conference on Disarmament
Missile Technology Control Regime
Nuclear Suppliers Group
Proliferation Security Initiative
Zangger Committee
Wassenaar Arrangement

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

NGO Participation: "We would also welcome more interactivity in such sessions and the inclusion of lead-off speakers drawn from the ranks of leading representatives or experts of concerned organizations. In our opinion, such a coherent consideration of prominent topics could yield substantial, policy relevant results and help the Committee consider forward-looking initiatives, something which is not necessary obtainable from the frequently formalistic processing of Committee resolutions."
- Statement by Ambassador Paul Meyer to the 59th session of the General Assembly First Committee of the 59th Session of the General Assembly of the United Nations, 4 October 2004.
http://www.reachingcriticalwill.org/political/1com/1com04/statements/Canada.pdf

Verification: "Part of the response should be a reinforced system to ensure that the Treaty's core non-proliferation obligations are being respected and are seen to be so. The Additional Protocol is now the verification standard, pursuant to Article III of the NPT, necessary to monitor compliance. We need to collectively via a decision at next year's Review Conference to recognize this standard as mandatory under the Treaty and make it clear that cooperation under Art IV is possible only through the confidence the Protocol brings. The right to benefit from the peaceful uses of nuclear energy is balanced by concomitant obligations; for the Treaty's security and economic benefits to continue, we all have to be prepared to make the additional commitment to ensure that non-proliferation obligations will never be derogated from." **- Statement by Ambassador Paul Meyer to the Third Meeting of the Preparatory Committee for the 2005 NPT Review Conference, 26 April 2004.**
http://www.reachingcriticalwill.org/legal/npt/prepcom04/canada26.pdf

Export controls: "The UN's nuclear watchdog, the International Atomic Energy Agency, needs stronger

tools and political support. We need more rigorous controls on sensitive nuclear technology, and the Security Council must be prepared to deal with non-compliance effectively." - **Statement by Prime Minister Paul Martin to the 59th Session of the General Assembly, 22 September 2004.** http://www.reachingcriticalwill.org/political/1com/1com04/disarmindex.html#canada

Fissile Material: "At the last Review Conference in 2000, the Conference on Disarmament was specifically tasked to start work immediately on negotiations of a Fissile Material Cut-off Treaty to ban production of fissile material for nuclear weapons and to establish an appropriate subsidiary body to deal with the issue of nuclear disarmament. Five years later, the Conference on Disarmament has not managed to accomplish one iota of this work plan. The failure of the Conference on Disarmament to make progress on these two key items of business, when coupled with other failures to deliver on agreed disarmament measures, will diminish the disarmament side of the NPT equation. This failure will make it more difficult to obtain major new commitments on the non-proliferation side." - **Statement by Mr. Pierre Pettigrew, Foreign Minister, to the Conference of Disarmament, 14 March 2005** http://www.reachingcriticalwill.org/political/cd/speeches05/index.html

Chile

1. Location and capability of nuclear facilities

Chile considered launching a nuclear power program in the 1970s (Proyecto Nucleoeléctrico) and developed a nuclear research infrastructure, but the power project was halted in the 1980s. The Chilean Commission on Nuclear Energy has made clear in recent years that nuclear power continues to be an open option for the country. http://www.cchen.cl/?docp=Nucleoelectricidad/presiciones

Research Reactors **Power Reactors**- 0
Operational: 2
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

2. Nuclear Activities

Research Centers
CEN - Centro de Estudios Nucleares Lo Aguirre
CEN - Centro de Estudios Nucleares La Reina
CONICYT - Comision Nacional de Investigacion Cientifica y Technologica
http://www.radwaste.org/research.htm

Nuclear Cooperation
IAEA: The IAEA promoted the development of the "Nuclear Techniques in Copper Mining" in Chile in cooperation with the Chuquicamata Division of the National Copper Corporation and the Centre for Mining and Metallurgy Research. http://www.iaea.org/About/Policy/GC/GC47/Documents/gc47inf-8.pdf

China: A 1989 agreement for assistance with extracting uranium from the Andes Mountains. http://www.nti.org/db/china/nca.htm

3. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
APM Convention, 10 September 2001
Biological Weapons Convention, 22 April 1980
Certain Conventional Weapons Convention, 15 October 2003
Comprehensive Nuclear Test-Ban Treaty, 12 July 2000
Chemical Weapons Convention, 12 July 1996
Nuclear Non-Proliferation Treaty, 25 May 1995
Outer Space Treaty, 8 October 1981
Treaty of Tlatelolco, 9 October 1974

Chile ratified the IAEA Additional Protocol 3 November 2003.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation

4. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Disarmament: "...the NPT is not only a non-proliferation instrument but also a tool for disarmament inasmuch as it establishes the basis for the elimination of the most destructive weapons ever created by man. Thus, it is a question not of 'what' but of 'when'. And Chile believes that the 2005 Review Conference should end with a satisfactory response. Nuclear disarmament should not be a sort of

'Flying Dutchman' driven by a powerful curse to sail the stormy multilateral seas without ever reaching port, except in conferences incapable of saving it from its fate." - **Statement by Minister Counsellor Alfredo Labbé to the Second Preparatory Committee of the 2005 NPT Review Conference , 29 April 2003.** http://www.reachingcriticalwill.org/legal/npt/2003statements/chile.htm

Proliferation: "I would like to point out that the dangers besetting the Treaty- and with it the entire disarmament edifice- come not only from the currently perceptible manifestations of proliferation but also from suspicions of a persistent vertical proliferation combined with the notion of the expediency of developing- and possibly using- new nuclear weapons on the part of those States most obligated by Article VI. The legitimacy of the ban on proliferation depends entirely on the strict and unequivocal application of the principle of irreversibility." - **Statement by Minister Counsellor Alfredo Labbé to the Second Preparatory Committee of the 2005 NPT Review Conference, 29 April 2003.** http://www.reachingcriticalwill.org/legal/npt/2003statements/chile.htm

Verification: "These cases (of recent proliferation) have emphasized the importance of the mechanisms of verification and the urgent necessity to universalize the Additional Protocol, equipping the IAEA with the tools to lead instrusive, effective inspections. It is also by this reason that the Additional Protocol must occupy an outstanding place in the Final Document of the 2005 Review Conference of the NPT." - **Statement by Alfredo Labbé to the Third Preparatory Committee of the 2005 NPT Review Conference, 28 April 2004.** http://www.reachingcriticalwill.org/legal/npt/prepcom04/chile28.htm

Colombia

1. Location and capability of nuclear facilities

While Colombia does not have a nuclear power program, it is nevertheless included as one of the 44 States listed in Annex II of the Comprehensive Nuclear Test-Ban Treaty (CTBT), whose ratification is required for that Treaty to enter-into-force.

Power Reactors- 0

Research Reactors
Operational: 1
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

2. Nuclear Activities

Research Centers
UPME: Colombia Planning Unit of Ministry of Energy
INEA: Colombia Nuclear Research Center
http://www.dis.anl.gov/CEEESA/about_sponsors.html

Nuclear Cooperation
Colombia is a member of the Regional Cooperative Agreements for the Promotion of Nuclear Science and Technology in Latin America.

IAEA: Colombia also participates in the IAEA technical cooperation program, receiving training and security for its research reactor. http://www.nti.org/e_research/official_docs/labs/LAUR03-6%202.pdf

US: The US contributes much support and maintenance of Colombia's research reactor through its Department of Energy.

3. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
Antarctic Treaty, 31 January 1989
APM Convention, 6 September 2000
Biological Weapons Convention, 19 December 1983
Certain Conventional Weapons Convention, 6 March 2000
Comprehensive Nuclear Test-Ban Treaty, not ratified
Chemical Weapons Convention, 5 April 2000
Nuclear Non-Proliferation Treaty, 8 April 1986
Outer Space Treaty, not ratified
Sea Bed Treaty, not ratified
Treaty of Tlatelolco, 4 August 1972

Colombia signed the IAEA Additional Protocol 25 November 2004 but has not yet ratified.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct on Ballistic Missile Proliferation

4. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

CTBT: "The disarmament agenda also implies a prompt entry-into-force of the Comprehensive Test-Ban Treaty -CTBT. My country signed the CTBT in 1996 as a result of its conviction that a total nuclear test ban is indispensable for international peace and security. Colombia is a non-nuclear country without any intention or reason to change that situation. On the contrary, we firmly believe in the non-proliferation of mass destruction weapons and in the peaceful use of nuclear science and technology. The inclusion of Colombia in Annex II of the Treaty as a country which ratification is needed to its entry-into-force gives us an additional responsibility. Our commitment with the CTBT is reflected in our national government will to ratify it as soon as possible. Our Congress has already issued the law that approves the treaty and it is now under our constitutional control."

Nuclear disarmament: "My delegation wishes to underline that there is still a lot to be done in the field of nuclear disarmament. The danger of a nuclear war still exists, as well as the possibility of a total destruction. Furthermore... the doctrines that seek to justify the use of nuclear weapons also persist, as well as the qualitative development of these weapons. Although we recognize that the reduction in the number of nuclear weapons is a step in the right direction, a more resolved action is required on the part of the states that possess these weapons to establish a program for its total elimination."

Universality: "We are convinced of the necessity to guarantee (the) preservation (of the NPT), its strengthening and its universality. In this context, we are convinced that it is through a successful review process that the Treaty keeps its validity."

All statements are by **Ambassador Alfonso Valdivieso to the Second Preparatory Committee of the 2005 NPT Review Conference, 8 April 2002**.
http://www.basicint.org/nuclear/NPT/2002prepcom/colombia.htm

Mexico

1. Location and capability of nuclear facilities

Mexico has one nuclear power plant with two reactors in operation, providing for approximately 5.2% of the produced energy in 2003. There are no plans regarding new units or new plants, as the initial costs for such projects are much higher than those connected with plants for natural gas, the currently favored option in Mexico.

Alternative sources of energy, such as geothermal, solar and wind energy have been heavily promoted for rural areas isolated from the electrical grid. http://www.world-nuclear.org/info/reactors.htm
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/CNPP_Webpage/PDF/2002/Documents/Documents/Mexico%202002.pdf;

Power Reactors
Operational: 2
Shut down: 0
Decommissioned: 0
Planned: 0
http://www.iaea.or.at/programmes/a2/

Research Reactors
Operational: 3
Shut down: 0
Decommissioned: 1
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Uranium Mines
There are no operating uranium mines in Mexico, nor any plans for producing uranium. However, uranium reserves of some 2,000 tons of have been found throughout the country.
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/CNPP_Webpage/PDF/2002/Documents/Documents/Mexico%202002.pdf

2. Fissile Material Holdings

Separated Civil Plutonium- 2.2 tons (end 2002)
http://www.isis-online.org/global_stocks/civil_pu.html#table7

Radioactive waste disposal
Low- and intermediate-level waste: An operational repository managed by the National Nuclear Research Institute (ININ) for all low- and intermediate-level wastes produced in medical and industrial facilities is expected to be closed in the near future due to the population growth in the vicinity. This repository will be replaced with a "triple barrier" permanent one in the future. The Laguna Verde Plant operates another interim low- and intermediate-level waste repository to handle wastes coming from the plant.

High-level waste: The high-level waste from the Laguna Verde Plant is stored at the plant in the reactor's pools until agreement on a permanent facility can be reached.
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/CNPP_Webpage/PDF/2002/Documents/Documents/Mexico%202002.pdf

3. Nuclear Activities

Research Centers
ININ: The National Institute of Nuclear Research
Instituto de Investigaciones Electricas, Cuernavaca
Instituto Politecnico Nacional, Mexico City
Centro de Investigacion y de Estudios Avanzados
Comision Federal de Electricidad, Mexico City
Instituto Nacional de Investigaciones Nucleares, Mexico City
Comision Nacional de Seguridad Nuclear y Salvaguardas, Mexico City

Instituto Nacional de Ingestigaciones Nucleares, Escandon
Instituto Nacional de Investigaciones Nucleares, Salazar
Laguna Verde Nuclear Power Plant, Veracruz
http://www.iaea.org/inis/ws/research_institutes/mexico.html; http://www.radwaste.org/research.htm

Nuclear Cooperation
Spain: Some training for the Laguna Verde plant was held in Spain, though training is now done locally.

France: Mexico has a long-term contract with France to convert concentrated hexafluoride to useable hexafluoride.

US: The main components of the Laguna Verde plant were acquired abroad, mainly from the US. The US Department of Energy provides all necessary enrichment processes for the Mexican nuclear plant. Fuel fabrication is done by General Electric. A variety of other corporations, including Siemens, are involved in fuel assemblies at Laguna Verde.
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2003/CNPP_Webpage/PDF/2002/Documents/Documents/Mexico%202002.pdf

Australia: Mexico and Australia signed a bilateral agreement concerning cooperation in nuclear energy and the transfer of nuclear material in February 1992.
http://www.austlii.edu.au/au/other/dfat/treaties/1992/32.html

Canada: There is a Nuclear Cooperation Agreement about between the two countries since 1995. Under the Agreement, the possibility exists for the exchange of information, transfer of nuclear material, equipment and technology, and technical assistance training.
http://www.nuclearsafety.gc.ca/eng/media/speeches/mexico.cfm

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
APM Convention, 9 June 1998
Biological Weapons Convention, 8 April 1974
Certain Conventional Weapons Convention, 11 February 1982
Chemical Weapons Convention, 29 August 1994
Comprehensive Nuclear Test-Ban Treaty, 5 October, 1999
Inter-American Convention on Transparency, 7 June 1999
Nuclear Non-Proliferation Treaty, 21 January 1969
Outer Space Treaty, 31 January 1969
Sea Bed Treaty, 23 March 1984
Treaty of Tlatelolco, 20 September 1967

Mexico signed the IAEA Additional Protocol 29 March 2004 but has not yet ratified.

Multilateral Groups
Conference on Disarmament

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Disarmament: "During the public meetings of the Security Council prior to the adoption of resolution 1540, while sharing the need of concerted and determined action by the international community to avoid the access by non-state actors to weapons of mass destruction, Mexico stated that the most

effective and lasting manner to face the danger of those weapons would be to proceed to their total elimination, through multilaterally negotiated disarmament agreements. However, the international strategy to combat terrorism tends to emphasize non-proliferation in detriment of disarmament objectives and in particular the obligations of nuclear States in the disarmament field... We must recognize that disarmament is the most effective antidote to proliferation." - **Statement by Ambassador Enrique Berruga Filloy to the 59th session of the General Assembly First Committee on Disarmament and International Security, 4 October 2004.**
http://www.reachingcriticalwill.org/political/1com/1com04/statements/Mexico.pdf

Practical steps: "The achievement of nuclear disarmament is not an option, but a legal obligation established in the NPT. Equally, the indefinite extension of the Treaty in 1995 did not equate to indefinite ownershp of nuclear weapons, a point that was reaffirmed at the 2000 Review Conference by the 'unequivocal undertaking by the nuclear-weapon States to accomplish the total elimination of their nuclear arsenals.' We also recall that the steps agreed by the 2000 Review Conference in order to implement article VI, cannot be seen as alternatives à la carte." - **Statement by Ambassador Luis Alfonso de Alba, on behalf of the New Agenda Coalition, to the Third Preparatory Committee of the 2005 NPT Review Conference, 26 April 2004.**
http://www.reachingcriticalwill.org/legal/npt/prepcom04/mexiconac26.pdf

Nuclear weapon-free zones: "As a promoter of the Treaty that created the first (NWFZ) in a densely populated region, Mexico is convinced that the establishment of new zones, as well as the consolidation of those which already exist, constitutes an invaluable contribution to international peace and security, as well as to the causes of the nuclear disarmament and non-proliferation." (*unofficial translation*)
- **Statement by Ambassador Pablo Macedo to the Conference on Disarmament, 31 March 2005**.
http://www.reachingcriticalwill.org/political/cd/speeches05/Mar31Mexico.pdf

Peru

1. Location and capability of nuclear facilities

Peru does not operate any nuclear power plants today, but the Peruvian Nuclear Program began in 1975 with the construction of basic infrastructure and human resources training. In 1995, a research center was built. That same year, the 1995-2000 Nuclear Plan was approved, emphasizing the optimal use of the nuclear facilities available in the country.
http://anes.fiu.edu/Pro/s2mon.pdf

Research Reactors **Power Reactors**-0
Operational: 2
Planned: 0
http://www.iaea.or.at/worldatom/rrdb/

Uranium Mines
Uranium exploration in Peru was conducted under the authority and control of Instituto Peruano de Energía Nuclear (IPEN) since the 1950s and until 1992, when economic constraints put an end to activity. During the three decades, 78 target areas were identified. Over 40 locations of uranium deposits in Puno, south-eastern part of Peru, were estimated to amount to 3,650 tons.

Prospection of the uranium mine of the Musicani project was halted.
http://www.venaresources.com/The_News/Latest_News/Uranium_Property_Expansion/
http://www.worldenergy.org/wec-geis/edc/countries/Peru.asp; http://www.antenna.nl/wise/uranium/uosam.html#PE

2. Fissile Material Holdings

Radioactive waste disposal
Low- and intermediate-level waste: Rasco is a near surface repository site for Peru's low- and intermediate-level waste. http://www.radioactivewaste.gov.au/pdf_documents/eis/draft_eis/Chapters/chapter_2.pdf

3. Nuclear Activities

Research Centers
IPEN: Peruvian Nuclear Energy Institute
SPR: Peruvian Society of Radioprotection
http://www.iaea.org/inis/ws/research_institutes/peru.html

Nuclear Cooperation
IAEA: Peru is part of the Regional Cooperative Arrangement for the Promotion of Nuclear Science and Technology in Latin America (ARCAL), an IAEA program concerning regional cooperation in the areas of research reactors, nuclear techniques in agriculture and activities on food irradiation, among others. http://www-tc.iaea.org/tcweb/tcprogramme/projectsbyregion/latinamerica/arcal/default.asp

US: The US, as well as the IAEA, assists Peru in the field of nuclear power generation at the Argonne National laboratory. http://www.iaea.org/About/Policy/GC/GC39/Records/g39plr08.pdf

Canada: Several Canadian companies, including Resources Corporation, Solex Resoruces Corporation, Strathmore Minerals Corporation and Vena Resources Corp. own the rights to uranium deposits in various parts of Peru, most particularly in the south and and south-east.
http://www.uxc.com/links/uxc_links-j-l.html; http://www.world-nuclear.org/nb/nb01/nb0122.htm
http://www.venaresources.com/The_News/Latest_News/Uranium_Property_Expansion/

Russia: Since 1991, the Russian government cooperates with Peru through the Russian Minatom

department. http://www.bellona.no/en/channel29444n25s800 .html

4. International Non-proliferation Efforts

Treaties Signed and Ratified, date of deposit
APM Convention, 17 June 1998
Biological Weapons Convention, 5 June 1985
Certain Conventional Weapons Convention, 3 July 1997
Comprehensive Nuclear Test-Ban Treaty, 12 November 1997
Chemical Weapons Convention, 20 July 1995
Nuclear Non-Proliferation Treaty, 3 March 1970
Outer Space Treaty, 28 February 1979
Treaty of Tlatelolco, 4 March 1969

Peru ratified the IAEA Additional Protocol 23 July 2001.

Multilateral Groups
Conference on Disarmament
Hague Code of Conduct against Ballistic Missile Proliferation

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Practical steps: "The implementation of the 13 practical steps, adopted at the 2000 Review Conference, are indispensable, especially the signature and ratification of the CTBT, principally by the 44 States with basic nuclear capability; the establishment of moratorium of nuclear tests; the negotiation of an FMCT, including an effective verification mechanism, and the implementation of the principle of irreversibility applied to disarmament."

Negative security assurances: "Peru considers the negotiation of a binding, legal instrument granting security assurances to NNWS an indispensable goal."

CTBT: "My government considers the entry-into-force of the Comprehensive Nuclear Test-Ban Treaty imperative. The government of Peru ratified it in 1997. I call upon the other 11 States that not yet have ratified it to do so."

All quotes are unofficial translations of statements by Ambassador Manuel Rodriguez-Cuadros to the Conference on Disarmament, 15 March 2005.
http://www.reachingcriticalwill.org/political/cd/speeches05/Mar15Peru.pdf

Acronyms

ABM: Anti-Ballistic Missile Treaty
AECL: Atomic Energy of Canada Limited
APM: Anti-Personnel Mines
AFB: Air Force Base
AWE: Atomic Weapons Establishment (UK)
BNFL: British Nuclear Fuels Ltd.
BWC: Biological Weapons Convention
CANDU (reactor): Canada Deuterium Uranium
CD: Conference on Disarmament
CTBT: Comprehensive (nuclear) Test-Ban Treaty
CTBTO: Comprehensive (nuclear) Test-Ban Treaty Organization
CWC: Chemical Weapons Convention
DoE: Department of Energy (US)
EoV: Explanation of Vote
EURATOM: European Atomic Energy Community
FM(C)T: Fissile Material (Cut-Off) Treaty
FY: Fiscal Year
HEU: Highly Enriched Uranium
HLW: High-Level Waste
IAEA: International Atomic Energy Agency
ICBM: Inter-Continental Ballistic Missile
ICJ: International Court of Justice
ILW: Intermediate-Level Waste
IPPNW: International Physicians for the Prevention of Nuclear War
LEU: Low Enriched Uranium
LLW: Low-Level Waste
LWR: Light water reactor
MARV: Maneuverable Re-Entry Vehicles
MoD: Ministry of Defense
MOX: Mixed Oxide Fuel
MPF: Modern Pit Facility
Minatom: Ministry for Atomic Energy of the Russian Federation
MIRV: Multiple Independent Re-entry Vehicle
MOU: Memorandum of Understanding
MTU: Metric tons of uranium
MW: megawatt
NATO: North Atlantic Treaty Organization
NPR: Nuclear Posture Review (US)
NPT: Nuclear Non-Proliferation Treaty
NSA: Negative Security Assurances
NNWS: Non-Nuclear Weapon States
NWS: Nuclear Weapon States (US, Russia, UK, France, China)
NWFZ: Nuclear Weapon-Free Zone
OECD: Organization for Economic Cooperation and Development
PAROS: Prevention of an Arms Race in Outer Space
PrepCom: Preparatory Committee of the Nuclear Non-Proliferation Treaty
Pu: Plutonium
R&D: Research and development
RNEP: Robust Nuclear Earth Penetrator
SDR: Strategic Defence Review (UK)
SLBM: Submarine Launched Ballistic Missiles
SORT: Strategic Offensive Reductions Treaty (Moscow Treaty between US and Russia)
SSBN: Ballistic Missile Submarines
START I, II, III: Strategic Arms Reductions Treaties (US and Russia)
UNDC: United Nations Disarmament Commission