

The nuclear suppliers group (NSG)

Safeguards are complemented by controls on the export of sensitive technology through voluntary bodies such as the NSG. It was set up in 1974, and now includes 45 countries.

The group's guidelines are a set of export rules to ensure that nuclear material or equipment are not sent to unsafeguarded nuclear fuel cycle or nuclear explosive activities. Formal government assurances to this effect are required from recipients. The NSG obliges its members to require their recipients of nuclear exports to accept full-scope safeguards.

Future developments for non-proliferation

Today, the major risk of nuclear weapons proliferation lies with those countries which have not joined the NPT and have significant unsafeguarded nuclear activities, or those which have joined but disregard their treaty commitments. A further concern is that countries may develop sensitive nuclear fuel cycle facilities and then opt out of the NPT. In a context of worldwide expansion of nuclear energy, it is imperative to focus on the non-proliferation challenges associated with it. Although there is very little economic incentive for a state to construct its own sensitive fuel cycle activities, providing the highest possible nuclear fuel supply assurances to potential customer countries further minimizes any incentive to build such plants.

An effective international system

The Non- Proliferation Treaty (NPT) was established to prevent countries from acquiring nuclear weapons whilst assisting them in developing civil nuclear technology. In the 1960s it was widely assumed that there would be 30-35 nuclear weapons states by the turn of the century. In fact, there are eight - a testimony to the effectiveness of the non-proliferation regime.

Over the past 35 years, the international safeguards system has successfully prevented the diversion of fissile materials into weapons, and so far, no country has proliferated by diverting materials or facilities under IAEA safeguards. Most countries have renounced nuclear weapons and participate in international initiatives designed to limit the proliferation of nuclear weapons.

A legal framework: the treaty on the non-proliferation of nuclear weapons

The Non-Proliferation Treaty (NPT), which entered into force in 1970, is the cornerstone of the global nuclear non-proliferation regime. It has three objectives:

- Prevent the proliferation of nuclear weapons and weapons technology;
- Promote the peaceful uses of nuclear energy;
- Pursue nuclear disarmament.



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Under the Treaty, non-nuclear weapon states undertake not to acquire nuclear weapons and to accept control and safeguards. In exchange, they are entitled to benefit from the transfer of technology for peaceful purposes from nuclear powers, who agree in turn to reduce their nuclear arsenals.

At present, 189 states are party to the NPT, including all five declared nuclear weapon states: China, France, the Russian Federation, the United Kingdom, and the United States of America. The main countries remaining outside the NPT are Israel, India, Pakistan and North Korea, which withdrew in 2003.

An efficient verification agency: the International Atomic Energy Agency (IAEA)

The IAEA was founded by the United Nations in 1957 to help nations develop nuclear energy for peaceful purposes. It also now operates a safeguards system as specified under the NPT which aims to ensure that civil stocks of uranium, plutonium, as well as facilities and technologies associated with these nuclear materials, are used only for peaceful purposes.

Full-scope safeguards: ensuring the non-diversion of declared nuclear material

These are mandatory safeguards applied to all nuclear materials in all peaceful nuclear activities within a country's territory or under its control. All non-nuclear weapon states party to the NPT are under full-scope safeguards. The basic features of these safeguards are:

- nuclear material accounting: the Agency establishes an initial inventory of nuclear material based on information provided primarily by the state, and records subsequent changes to it;
- containment and surveillance measures to monitor access to and movement of nuclear material;
- on-site visits during which Agency inspectors have the right to carry out a variety of measures (sampling and analysis of materials).

Strengthening the safeguards system: ensuring the absence of any undeclared nuclear material

The Model Additional Protocol, agreed by the IAEA Board of Governors in 1997, embodies powerful new tools to help the Agency verify states' compliance with their non-proliferation undertakings. eighty-eight countries plus Taiwan have Additional Protocols in force.

Under an Additional Protocol a state is required to provide to the Agency information and access related to: all aspects of its nuclear fuel cycle; nuclear fuel-cycle related R & D; all buildings on a nuclear site; the manufacture and export of sensitive nuclear-related equipment and technologies; long-term plans for the development of the nuclear fuel cycle.

The wider use of environmental sampling and the granting of one-year multiple-entry visas to inspectors are some of the technical and administrative tools that ensure the robustness of the strengthened system.