

# *How the world can combat* **Nuclear Terrorism**

*by Mohamed ElBaradei and Jonas Gahr Støre*

**The simplest way to produce an atomic explosion** is to slam together two sizeable chunks of high enriched uranium (HEU), in what is commonly called a “gun-type nuke”. The approach might sound comparatively crude, and it is. No country currently uses this design for its nuclear weapons.

But it is worth remembering two things. First, that it was an HEU gun-type nuclear weapon that killed more than 70 000 persons at Hiroshima. Second, that terrorists tend to be less focused on elegance of design than on results.

This brings us to a critical question: after nearly five years of living under the threat of sophisticated terrorism — and with clear signs of terrorists trying to acquire nuclear material through criminal networks — why are we still moving so sluggishly to get rid of global HEU stockpiles, and to minimize civilian uses of HEU?

Much attention is currently being given to the control of uranium enrichment technology, and rightly so. If all enrichment operations were brought under multinational control, it would become far more difficult for any country to divert enriched uranium for use in weapons. But it makes equal sense to protect — or, better still, to eliminate — the bomb-grade HEU that already exists.

Experts say there are about 1850 metric tonnes of HEU in global stockpiles, enough to make tens of thousands of nuclear weapons. The great bulk of this HEU is in military use. On the civilian side, the numbers are much smaller — but the level of security is uneven. Nearly 100 civilian facilities around the world operate with small amounts of weapon-grade HEU — that is, uranium that has been enriched to 90% or greater.

These facilities, primarily research reactors, provide important benefits. The isotopes they produce are vital to

medical treatments, industrial productivity, water management and many other humanitarian uses. Research conducted at these facilities has greatly enhanced our quality of life.

But most if not all of these benefits could also be achieved using low enriched uranium (LEU). As far back as the late 1970s, the US and other countries began efforts to convert such facilities from HEU to LEU, to reduce the proliferation risk.

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In recent years, good progress has been made. Many research reactors have been converted. Large quantities of HEU reactor fuel, both used and unused, have been removed from vulnerable locations and returned to the countries of origin.

Civil society has become involved, raising awareness of the problem and supporting change. A good exam-

ple is that of the Nuclear Threat Initiative. Just last year it completed a project with the government of Kazakhstan that successfully 'downblended' nearly 3,000 kilograms of fresh HEU fuel to LEU and placed it in secure storage. But more successes like these are needed. Many vulnerabilities remain. We need to ratchet up the sense of urgency. And we need more coherent global action.

**First**, the countries involved should join forces to minimize and eventually eliminate the civilian use of HEU. Joint research should be conducted to address the remaining technical hurdles involved in converting from HEU to LEU operations. The commercial interests of the companies concerned should be protected. Financing should be made available where needed to assist countries with conversion operations. And the HEU fuel should be sent back to the countries of origin for downblending and reuse.

**Second**, all countries should agree to stop producing fissile material for use in nuclear weapons. The elements are already in place for such an agreement, in the form of a Fissile Material Cut-off Treaty. It is high time to negotiate and conclude such a treaty.

**Third**, to build trust, countries with civilian and military HEU stockpiles should be encouraged to release clear inventories of those stockpiles, and to publish a schedule under which the remaining HEU will be verifiably downblended.

By investing in these straightforward measures, we could reduce substantially the risk of nuclear terrorism. The work could be done jointly, as an international community; this is one initiative in which all countries — nuclear weapon states and non-nuclear weapon states alike — could play a role, and from which all would clearly benefit.

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# HEU Symposium

## Calls for Coherent Global Action

A recent conference in Oslo, Norway highlighted the need for more vigorous and effective actions towards minimizing the civilian uses of highly enriched uranium (HEU). The international symposium, held 17-20 June at the Norway Peace Center and hosted by the Government of Norway in cooperation with the IAEA, aimed to establish international consensus on technical issues associated with the replacement of HEU with low-enriched uranium (LEU) for civilian uses and agree on a way forward for a concerted international effort.

In Mohamed ElBaradei's remarks, he cited the conference's timeliness in view of increasing attention currently being given to the control of uranium enrichment technology.

More than 100 civilian nuclear facilities around the world still run on weapons-grade HEU, which is uranium that has been enriched to 90% or greater. These facilities include research reactors and critical assemblies that were established in the 1950s and 1960s and have played a central role in the development of peaceful uses of nuclear technology. Many experts agree that these reactors can be converted to run efficiently on LEU, thus reducing proliferation risks while continuing to ensure a secure and effective path for nuclear research for peaceful purposes.

At the request of its Member States, the IAEA has been involved for many years in supporting efforts towards reducing the uses of HEU. International and national efforts have also increased in this area and resulted in the full conversion of 33 research reactors as of June 2006.

Although much has been achieved, vulnerabilities remain, Dr. ElBaradei emphasized. "These vulnerabilities, including the clear signs of terrorists trying to acquire nuclear material through criminal networks, were the primary reasons for which Minister Gahr and I called in our recent article for more vigorous and effective actions towards minimizing the civilian uses of HEU. In my view, we need to continue working with a sense of urgency, and through more coherent global action."

In concluding the symposium, it was recognized that considerable scientific and human development benefits are being derived from nuclear facilities using HEU and that substituting HEU with LEU should not affect those benefits. HEU minimization can make an important contribution to international non-proliferation and disarmament objectives while also promoting the peaceful uses of nuclear energy and technology.

For more information on the "International Symposium on the Minimization of Highly Enriched Uranium in the Civilian Sector," see: [www.nrpa.no/symposium/index.html](http://www.nrpa.no/symposium/index.html)

—Staff Report