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Nuclear security undervalued

The world's only agency for assuring global standards and security in nuclear installations needs an upgrade. This cannot be done on the cheap.

Think of the International Atomic Energy Agency (IAEA) and images come to mind of intrepid inspectors using the latest James Bond-like techniques to ferret out would-be nuclear proliferators. The reality is considerably less powerful. In theory, for example, mass spectrometry of microparticles has revolutionized the ability of inspectors to detect even tiny amounts of highly enriched uranium. In practice, they not only face a significant backlog of samples, but have to make do with instruments that are often three decades old and have no available spare parts.

And that is assuming that the inspectors have actually found the samples. The agency cannot afford to purchase sufficient commercial satellite imagery, much less possess its own satellite system, so too often it learns of the construction of suspect nuclear facilities from the media, or from non-governmental organizations.

Without a major budget increase for the IAEA, the world will not make the most of a vital player in defending against some of the greatest dangers it now faces. As billions of dollars pour into the expansion of nuclear power, and as more nations seek to join the nuclear club, the IAEA's budget has been flat at around €280 million (US$406 million) for much of the past two decades, despite an increasing workload. This stagnation is the result of a deliberate policy of 'zero real growth' imposed in the late 1980s by the richer members of the IAEA's 144 member states, who wanted to force international agencies to reform and seek external funds.

The agency's role is most deficient in the realm of nuclear security. In 2002, it created a Nuclear Security Fund in the wake of 9/11 to boost its almost non-existent efforts to help secure nuclear materials worldwide, and to detect and prevent nuclear terrorism. But the fund depends on voluntary contributions from member states, and its current annual budget of €15 million is not only wholly inadequate, it also includes some 'in kind' contributions, and is peppered with national earmarks.

Politicians worldwide claim that they have made nuclear security a priority since 9/11, but they must now translate that promise into action: at least double the IAEA's budget, a ballpark figure already suggested by the agency's director-general, Mohamed ElBaradei. Such a doubling of an already small budget is surely the least that would be consistent with the world's expectations of the agency.

Furthermore, the IAEA's member states should make the Nuclear Security Fund a regular part of the agency's budget, paid for by dues, so that it can be properly planned and staffed. It needs the means to hire and train a sufficient number of experts on nuclear security, to provide the international community with a detailed picture of nuclear security worldwide, and to focus its efforts in areas, such as the former Soviet Union, where they are most needed. It also needs greater powers — at present the IAEA can comment on what it sees as insecure facilities or stockpiles, but has no powers to enforce tighter security measures and upgrades, as these remain national prerogatives.

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There is also a greater need for nuclear operators worldwide to openly share security and information among themselves. One model is the World Association of Nuclear Operators, a forum created after the Chernobyl accident to bring together all the players in nuclear power to swap notes and review best safety practices. The US Nuclear Threat Initiative has proposed creating the same sort of forum, a World Institute for Nuclear Security, to discuss security issues. The idea is a valuable one that merits support.

ElBaradei has launched a '20/20 review' to redefine the IAEA's role in a world of expanding nuclear power and new security threats. The IAEA needs to be able to use the best technologies available, including mathematical modelling of material flows in sensitive facilities, and remote sensors, to better monitor diversion of nuclear material. It needs better databases of the fingerprints of illicit material to establish its origins. That will also require a new breed of inspector, less oriented towards checking the quantities of nuclear materials going in and out of facilities, and more detective-like, more inclined to rock the boat, and above all, better trained in the latest high tech. None of that will come cheap. No one is asking that the IAEA be given a blank cheque, but properly funding our international nuclear-verification system seems to be a bargain insurance policy. ■

Genetics benefits at risk

A rogue senator needs to be bypassed.

Technology development guru George Church — aka the information exhibitionist — is playing a salutary social role with his Personal Genome Project. Church is in the process of gathering phenotypic data and sequencing portions of the genomes of ten volunteers, including himself (see page 763). He intends to study how the genes of these people — all but one of whom have revealed their identities — influence their phenotypes, and to make those data public. Church's point is simple: information, including genetic information, can and should be freely available.

Whether or not one agrees with him, society had better be ready to deal with the results of such research, which is occurring against a background of explosive growth in the availability of genetic information. Consider that, in the five-and-a-half months since *Nature* last opined about this topic (see *Nature* **448,** 969; 2007), the number of