

Managing the Nuclear Dilemma

by David B. Waller

The IAEA at 50: an organization central to a global nuclear enterprise.

The history of nuclear energy has a grim beginning — but one that, however painful the memory, we cannot afford to forget. That beginning, of course, took place in Japan in August 1945, when the destructive horror of nuclear weapons was so vividly, and tragically, demonstrated.

In the years immediately following World War II, there was increasing concern as additional countries mastered, or were working to master, the technology to develop such weapons. By 1953, the Soviet Union had tested its first hydrogen bomb: the cold war had begun, and was getting colder by the day.

During that same post-war period, however — on a parallel track — the peaceful use of nuclear science was coming to be seen as a futuristic, ‘high-tech’ field — one that held great promise of transforming the way we live. There were predictions that electricity would become too cheap to meter, and other far-fetched dreams such as the use of an ‘atomic pill’ to power cars. But, in fact, real nuclear applications had been or were being developed — in medicine, agriculture, industry, and, of course, for the generation of electricity. Technologies with great potential to save lives, reduce suffering, and advance economic development.

So the pressing issue was how to further develop and promote these peaceful applications, while at the same time prevent the spread of weapons technology. That was — and indeed still is — the ‘nuclear dilemma’.

General Dwight Eisenhower, who had served as Supreme Commander of the Allied Forces in Europe during World War II, was elected President of the United States in 1952. Having served throughout that horrible war, his first priority was to maintain world peace. And, in particular, he was determined to solve the nuclear dilemma.

He wasted no time. In his first year as President, he made an inspired appeal before the United Nations General

Assembly — a proposal called ‘Atoms for Peace’. In it, he advocated the worldwide pursuit of peaceful uses of this energy source and the reduction of nuclear weapons stockpiles.

To lead this effort he also called for the establishment of ‘an International Atomic Energy Agency’. Just four years later, in the spirit of ‘Atoms for Peace’, the IAEA was, in fact, created.

Its mission? On the one hand to develop and facilitate the application of those promising beneficial applications of nuclear technology, and, on the other, to prevent the spread of nuclear weapons — that is, to manage the nuclear dilemma.

As regards the nuclear weapons-related part of the mission, the world soon began to realize that an additional legal mechanism was needed. Some way of getting each country, individually, to commit to nuclear non-proliferation or disarmament. In 1970, after years of negotiation, this led to the Treaty on the Non-Proliferation of Nuclear Weapons — commonly known as the NPT. It’s based on a bargain: put at its simplest, countries get access to peaceful nuclear technology provided that they renounce the development of nuclear weapons.

It soon became, and remains today, the most widely adhered to treaty in the world. Indeed, the only countries that have not signed it are India, Pakistan and Israel. North Korea — the DPRK — signed in 1985, but announced its withdrawal in 2003.

Safeguards and Verification

Like several other countries, Iraq signed the NPT back in 1970, and, as required by that Treaty, it then entered into a safeguards agreement with the IAEA. Under that agreement it provided the mandatory declaration or inventory of all of its nuclear material and facilities, and it permitted

IAEA verification activities — including routine on-the-ground inspections — to safeguard against any misuse of those nuclear facilities or material for weapons purposes.

But two decades later, in the early 1990s, in the immediate aftermath of the first Gulf War, a secret Iraqi programme to produce nuclear weapons was uncovered. This led to the first occasion on which the Agency's 35 Member Board of Governors — its key policy-making body — concluded that an NPT State had blatantly violated its safeguards obligations.

The discovery of Iraq's secret programme was also a wake-up call. It had clearly demonstrated that a country supposedly in compliance with its NPT treaty obligations could nonetheless simultaneously pursue a hidden nuclear weapons programme. Thus, it was clear that if IAEA verification or safeguarding was to be credible, the system had to be reinforced.

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The IAEA already had the ability to monitor and provide assurance that a country's declared nuclear facilities and material were being used exclusively for peaceful purposes. The challenge was to enable it to also provide assurance that a country had no 'undeclared', hidden nuclear weapons activities.

After lengthy debate, in 1997 a new mechanism was established. We called it the 'additional protocol' to safeguards agreements — a supplementary agreement that requires a country to provide the Agency with much broader information, and grant its inspectors expanded access to locations and facilities. Now — ten years later — 82 countries have additional protocols in force. But to be fully effective this key feature of the nuclear non-proliferation regime must become universally accepted.



President Eisenhower before the United Nations on 8 December 1953, delivering the 'atoms for peace' speech. Photo: IAEA

Although the Agency's safeguards or verification work attracts the greatest share of attention in the media, it represents only part of the overall Agency picture. There is also our work in safety, security and the beneficial applications of nuclear techniques.

Safety and Security

In April 1986, the world was hit with the shock-wave news of the accident at the Chernobyl nuclear power plant in the Soviet Union.

The outcome of the disaster was, of course, the recognition that insistence on the peaceful uses of nuclear energy was not enough. What was also needed was international collaboration and transparency in the operation and safety of nuclear power and other technologies. An accident at a nuclear reactor in any country could not only have tragic consequences for human health and society but also severely undermine the nuclear industry worldwide.

In the aftermath of Chernobyl, the Agency's comprehensive reports of the accident helped to move the international nuclear community to recognize the need for a global — not just a national — approach. What followed were safety

conventions, or treaties, peer reviews of national safety regimes, strengthened safety standards, and, more recently, regional safety networks.

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That momentum has never stopped. As IAEA Director General Mohamed ElBaradei has repeatedly stressed, the struggle to ensure safety is never won — it must always be considered a ‘work in progress’. Part of that struggle, of course, is to win the hearts and minds of the public, and that requires being open, being transparent.

On 11 September 2001, the Agency’s Board was in an afternoon session. By a remarkable coincidence we were discussing the Agency’s modest programme on nuclear security — to protect nuclear material and facilities against malicious acts. Word filtered through the Board room of first one, and then a second, plane crash into the World Trade Center in New York.

With the consent of the Chairman, the session was interrupted and CNN Breaking News was projected onto the large screen behind the podium.

That terrorist act itself, of course, did not threaten nuclear facilities, but the IAEA had learned a lesson from Chernobyl: don’t wait for an accident to put preventive measures in place.

Within just a few months, a significantly strengthened security plan to defend against nuclear terrorism had been developed, approved and initially funded. Since then, assistance to Member States — to prevent terrorists from gaining access to nuclear material and facilities, and radioactive sources — has become a significant part of our mission.

Science and Technology

Of course, not all our work is driven by such startling events. More often we are involved in what are, unfortunately, ‘hidden’ crises: concerning poverty, hunger and disease. And, this is where we implement the humanitarian component of our mission — promoting beneficial nuclear applications, especially in developing countries.

The Agency’s efforts to transfer these technologies were initiated in 1958, with a modest annual budget of \$125,000, and that included a donation of \$2.01 presented to the Agency’s first Director General by a New York schoolboy and his classmates. Today the annual budget for this effort is over \$75 million.

This work is facilitated by the Agency’s two laboratories — one in Austria and the other right on the harbor in Monaco. That facility, founded in 1961 and generously supported by the Principality, is known as the Marine Environment Lab. It deals with the health of the world’s oceans.

Our hundreds of projects using nuclear techniques are driven by unique and pressing needs in Member States. They cover a broad spectrum — from helping locate desperately needed drinking water in Bangladesh, to using radiation sterilization to help eliminate insect pests, such as the tsetse fly, that kills livestock and humans in Africa. And we donated the monetary award that came with the Nobel Peace Prize to a project aimed at training cancer therapy specialists in developing countries. As these examples demonstrate, the Agency brings different benefits to different Member States.

After years of post-Chernobyl stagnation, there are now, of course, undeniable signs of a rebirth of interest in nuclear energy. The compelling reasons for this renewed interest in this source of energy are well-known: greater safety, better economics, growing fears about energy security, sharp growth in energy demand — particularly in the developing world. And, of course, the overwhelming concern over global warming.

Nuclear power growth in the near term, based on current construction plans, will be greatest in China and India. Japan, with its ambitious ten-year plan for 13 new nuclear units, will remain a leader.

A central role

The IAEA is central to the global nuclear enterprise. It is the caretaker of the NPT. It is a central hub from which developing countries gain access to peaceful nuclear technology. It is a driving force for nuclear safety and security. In short, by managing the nuclear dilemma it is an organization in which all countries have a stake.

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