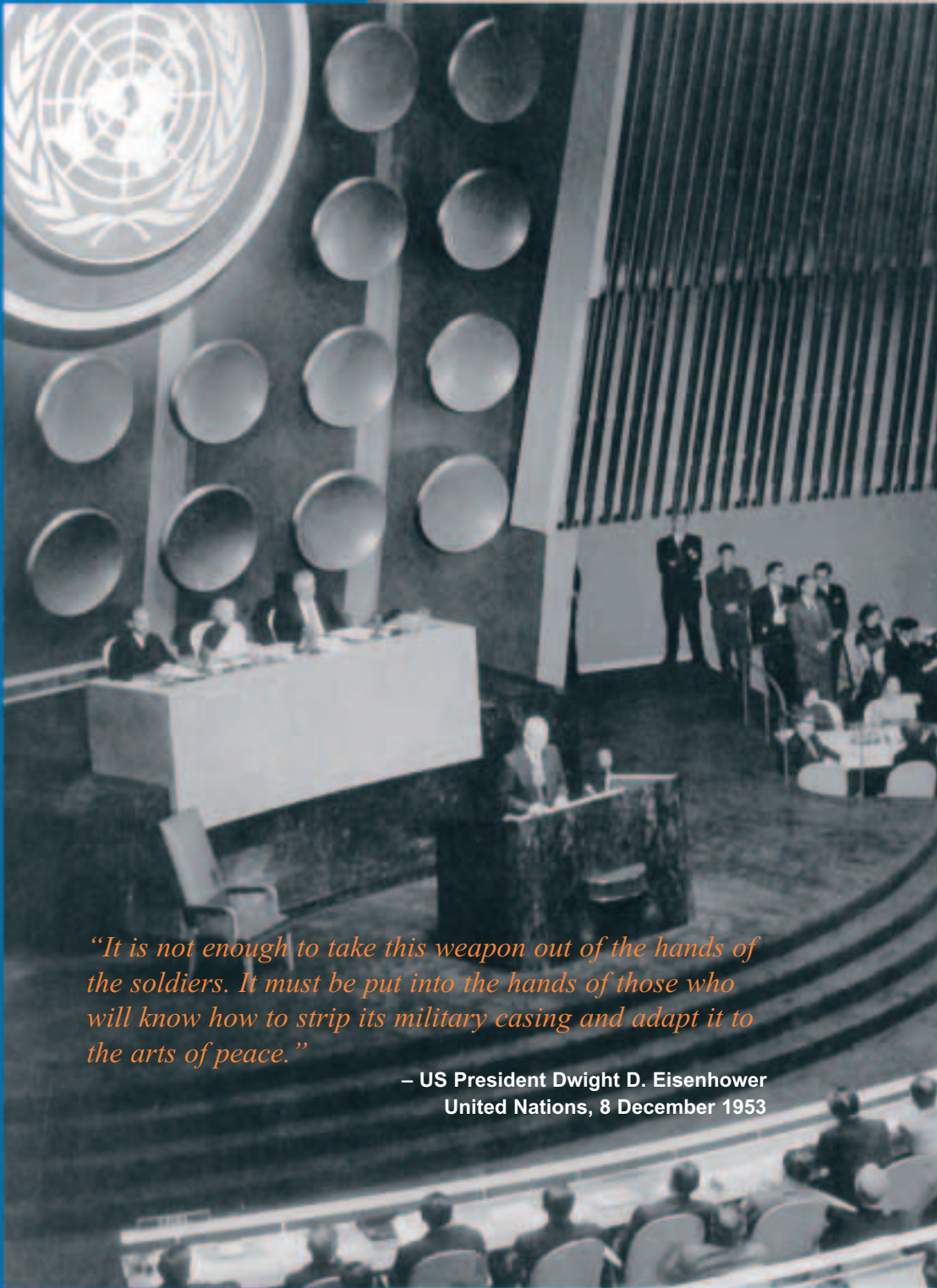


The **IAEA** At Work



“It is not enough to take this weapon out of the hands of the soldiers. It must be put into the hands of those who will know how to strip its military casing and adapt it to the arts of peace.”

– US President Dwight D. Eisenhower
United Nations, 8 December 1953

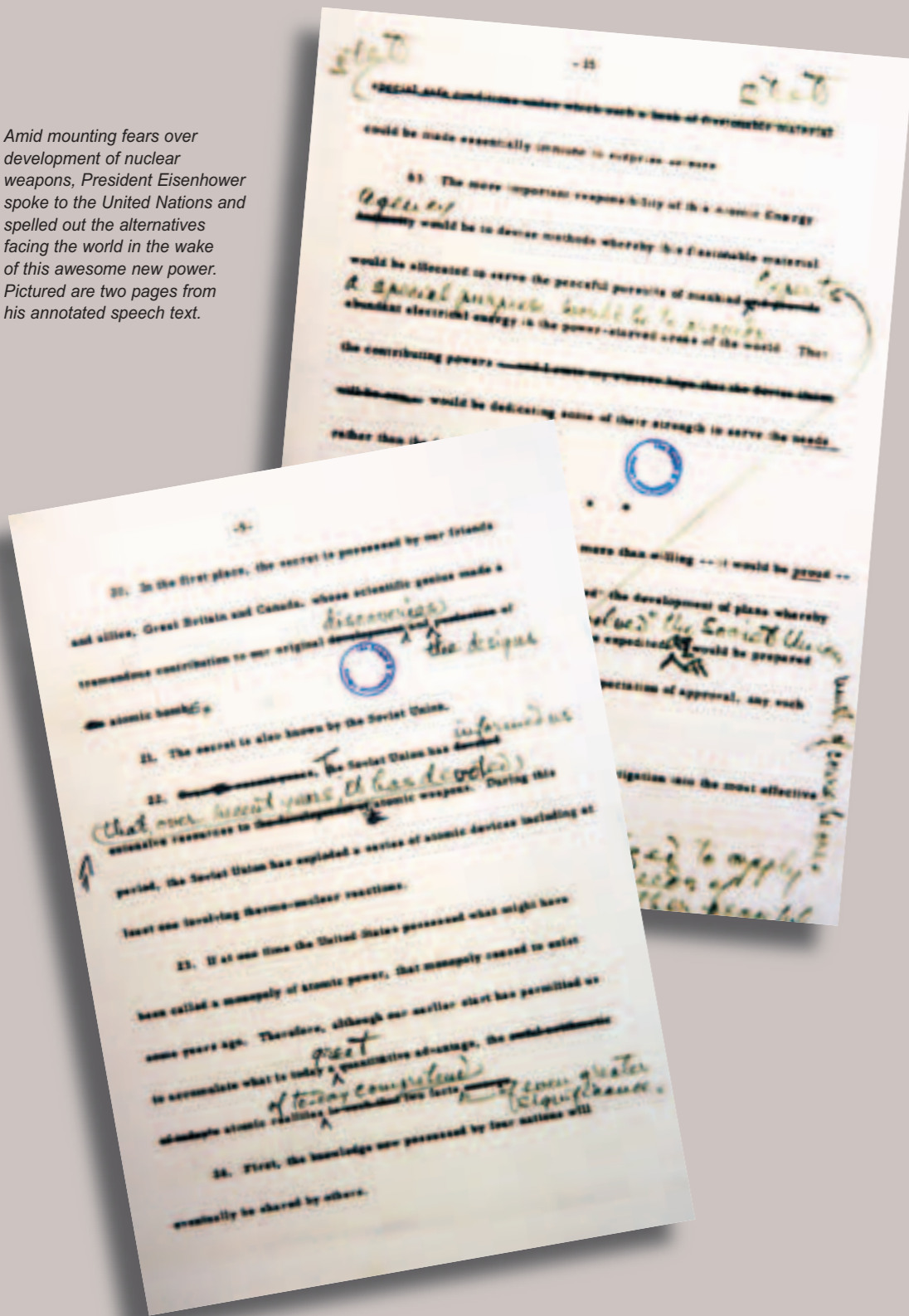


IAEA

International Atomic Energy Agency

Atomics For Peace

Amid mounting fears over development of nuclear weapons, President Eisenhower spoke to the United Nations and spelled out the alternatives facing the world in the wake of this awesome new power. Pictured are two pages from his annotated speech text.



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Written by the IAEA Division of Public Information

Introduction: **IAEA** Director General

Fifty years ago, Dwight Eisenhower stood before the United Nations to offer both a warning and a vision. The knowledge to build an atomic bomb was in the hands of rival powers and would soon be shared by many countries, the President said. It was time to create a UN body that could ensure that the new technology served no military purpose. It was time, moreover, to “devise methods whereby this fissionable material would be allocated to serve the peaceful pursuits of mankind” in agriculture, medicine and other peaceful activities.



Eisenhower foresaw a world safe from the destructive power of atomic fission but gaining from its technological advances. Half a century later, the world continues to witness his foresight through the work of the International Atomic Energy Agency (IAEA). The IAEA aims at four formidable goals: safeguarding nuclear non-proliferation; enhancing the security of nuclear facilities and radioactive materials; ensuring the safety of nuclear technologies; and promoting nuclear science to meet human needs.

The IAEA’s impartial inspectorate verifies the peaceful uses of nuclear energy in scores of countries. By joining the Agency’s strengthened safeguards system and concluding an Additional Protocol, countries can assure the world — and the IAEA can verify — that their nuclear activities are not used for weapons purposes.

True to Eisenhower’s vision, the power of the atom is being tapped for many human benefits, especially in the world’s less developed nations. Extreme poverty remains a profound problem today: some 1.2 billion people in the developing world survive marginally on less than \$1 per day. Another 2.8 billion struggle on less than \$2 per day.

The IAEA is mobilizing nuclear science to help address these pressing needs. From managing water better, to controlling pests and diseases, to protecting the environment, the IAEA is helping poor countries make sizeable advances. At the same time, the IAEA works with all its Member States to ensure that such cooperation is achieved within a safe, secure, and well-regulated nuclear infrastructure.

What follows is a brief portrait of the Agency’s Program in key areas. I hope you will agree that the IAEA’s contribution to global peace, safety, security and prosperity is unique and worthy of continued support.

Mohamed ElBaradei

Vienna, March 2004

Nuclear Weapons: **STEMMING** the Spread

Under UN Security Council resolutions relating to Iraq, the IAEA was charged with both uncovering and dismantling Iraq's nuclear weapons program in the early 1990s.



“The IAEA's work promoting the peaceful use of nuclear technologies and verifying compliance with solemn safeguards obligations is more important than ever.”

– UN Secretary General Kofi Annan

The Proliferation Threat

IAEA safeguards are designed to ensure that countries using nuclear technologies are not secretly developing nuclear weapons. Governments sign agreements with the IAEA pledging to disclose their nuclear materials and activities; the IAEA then applies accounting methods and on-site inspections to verify that the declarations continue to be accurate and complete.

Over 30 countries operate nuclear power plants. There are scores of other kinds of nuclear facilities safeguarded by the IAEA in over 70 countries. Under the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), the IAEA is charged with ensuring that States honour their commitments not to use nuclear material for explosive purposes. The Treaty requires that all non-nuclear-weapon States conclude comprehensive IAEA safeguards agreements and submit all nuclear material to IAEA monitoring.

IAEA inspections help to assure the world that nuclear material is not diverted for weapons or other explosive purposes and that no nuclear material or facilities remain undeclared in such States. The discovery of Iraq's secret nuclear weapons program in the early 1990s prompted the IAEA to implement stronger measures to improve detection of undeclared nuclear activities.

IAEA verification is further strengthened through an ‘Additional Protocol’ to a country's safeguards agreement. Under such a Protocol, States are required to provide the IAEA with broader information on all aspects of its nuclear fuel cycle-related activities. They must also grant the Agency wider access rights and enable it to use the most advanced verification technologies.

The nature and scope of activities that the Agency can conduct in each country depend on the level of the country's safeguards undertakings. It is only in countries with both a comprehensive safeguards agreement and an additional protocol in force that the Agency has sufficient information and access to provide credible assurances of both the non-diversion of nuclear material and the absence of undeclared nuclear material and activities.

WHAT DOES THE IAEA SAFEGUARD?

In countries under comprehensive safeguards, the IAEA accounts for all ‘source and special fissionable material’. Safeguards activities focus on materials that are crucial to making nuclear weapons — plutonium-239, uranium-233 and uranium-235. Safeguards are applied routinely at over 900 facilities in 71 countries. In 2002 alone, safeguards activities included the verification of more than 52 000 tons of special fissionable material by more than 250 IAEA inspectors.

Guarding Against

TERRORISM

The IAEA is helping to train customs agents in uncovering radioactive materials that smugglers attempt to move across international borders. Some 70 States have joined the IAEA in collecting and sharing information on illicit trafficking of radioactive sources and materials.



“The proliferation of weapons of mass destruction and their delivery means remains a serious challenge to the modern world. The most dangerous challenge is when they get into the hands of terrorists.”

– Russian President Vladimir Putin

Terrorist attacks in Kenya, the United States, Indonesia, Morocco, Turkey and other countries continue to shock the world. Governments across the globe recognize that concerted actions are required to protect against the malicious use of nuclear and other radioactive material and threats against nuclear facilities.

Terrorists could try to steal a nuclear weapon, or they might acquire the material needed for building a nuclear bomb. More likely, they could use radioactive materials to make a so-called ‘dirty bomb.’ Terrorists could also try to sabotage a nuclear power station, research reactor or other installation where these materials are used, stored or transported.

IAEA’s Member States can address the challenge of nuclear terrorism in numerous ways:

- Enhancing protection of nuclear material and facilities;
- Reinforcing control systems over nuclear materials;
- Preventing illicit trafficking of nuclear materials;
- Preparing emergency response plans; and
- Responding to malicious acts and threats.

The IAEA helps Member States to strengthen their capabilities to fight terrorism: by providing advisory services and training; by promoting international conventions, standards and guidelines, and by supplying critical information services and technical support.

Trafficking in nuclear material and other radioactive sources is a global concern, with confirmed incidents in more than 40 countries on six continents. The IAEA is supporting the development of better detection equipment for use worldwide.



The IAEA is **WORKING** Around the World



IAEA Global Activities Include:

-  Food and Agriculture
-  IAEA Offices and Laboratories
-  Cancer Treatment
-  Energy Production
-  Safeguards Verification
-  Industrial Applications
-  Controlling Radioactive Sources
-  Water Resources Management
-  Promoting Nuclear Security

The IAEA is active in almost every country of the world through its safeguards, safety, security and technical cooperation programs. The depicted activities represent only a small fraction of the total. IAEA safeguards are applied at over 900 facilities in 71 countries. Technical cooperation extends to more than 100 countries. Scores of Member States receive help with safety and security challenges. More than 80 developing countries receive aid in upgrading their cancer treatment facilities and personnel.

Ensuring the **SAFETY** of Nuclear Technology

The IAEA helps countries to upgrade nuclear safety and to prepare for and respond to emergencies. Work is keyed to international conventions, standards and, guidance. The main aim is to protect people and the environment from harmful radiation exposure.



“During an accident is not the time to decide what to do in an accident.”

– John F. Ahearne, Chairman,
US Nuclear Regulatory Commission, 1979–1981

Peaceful uses of nuclear technology are found throughout the fabric of modern life. They often go unnoticed, in uses such as food preservation and medical treatments. Other times, they evoke great passion, such as is the case with nuclear power plants, which supply some 16 percent of the world’s electricity. The one constant, however, is that no matter how nuclear technology is used, it must be done safely. This means that it must be used in a manner that does not jeopardize the health and safety of people, does not adversely impact the environment, and does not impose an unreasonable financial burden on an economy.

The IAEA is dedicated to assuring that all users of nuclear technology embrace this goal. To achieve it, the Agency promotes the concept of a Global Safety Regime. Such a regime starts with the establishment of international safety standards that define how best to protect people and the environment. They address how to ensure the safe design, construction and operation of nuclear installations used to generate electricity, and the plethora of radiation sources used in applications such as medical diagnosis and treatment, sterilization and various industrial radiography. The effective implementation of these standards is then assessed through safety missions and reviews. The IAEA’s efforts are enhanced by its promotion of research, technical cooperation and global information exchange.

The IAEA has established a vast body of safety standards covering nuclear energy, radiation protection, radioactive waste management and the transport of radioactive materials. They are updated regularly to ensure that state-of-the-art methods for achieving the highest levels of safety are provided. More importantly, they are coordinated with the guidance associated with other industrial and technical organizations.

To ensure that its standards are rigorously applied, the IAEA conducts safety reviews for appraising compliance and provides advisory services to users and regulatory authorities. These reviews and services are conducted by experts from throughout the world, under the leadership of the IAEA. This provides independent assessments whose results and recommendations are based upon globally accepted best practices.

Quality assurance is critical in the safe delivery of radiotherapy for cancer treatment. Medical physicists from across Africa attend an IAEA-sponsored workshop on dosimetry in radiotherapy.



At least 1 billion people around the world lack access to safe drinking water. In Bangladesh, the danger comes from arsenic-laden groundwater. The international aid community is looking to the IAEA's isotope hydrology techniques for clear answers about which sources of deep groundwater may be safely and sustainably tapped for the millions of people who are threatened.



“The UN agencies — such as the IAEA — have a great role to play, especially if they help to harness the advances of world science for the poor as well as the rich.”

– Professor Jeffrey Sachs
Earth Institute, Columbia University

Bridging the Technology Gap

Over a billion people in the developing world lack safe drinking water and sufficient food. The world's population is projected to increase by another 2 billion people in the next 25 years — most of them in the poorest countries of the world.

The poor lack the tools and know how that would allow them to be more productive and healthy. But by applying science to these development problems, new technologies can emerge that offer effective and sustainable solutions. The IAEA's technical cooperation program promotes research, adaptation and the transfer of nuclear science for meeting basic human needs.

Putting science to work for development requires ‘capacity building’ to train scientists and prepare institutions. Additional resources and expertise are necessary to test and refine nuclear applications to the conditions in poor communities. Working together with bilateral, multilateral, and non-governmental aid partners, the IAEA is contributing to the social and economic development of its Member States and delivering sizeable human benefits.

Nuclear techniques boost production of tropical plants and combat insects and diseases. Nuclear tools improve food safety and help to cut air pollution. Radiotherapy saves the lives of cancer sufferers throughout the developing world. All of this is achieved within the context of a secure and well-regulated nuclear infrastructure.

Some examples of the IAEA's worldwide efforts:

- In populous Bangladesh, isotopes are used to better manage the flow of groundwater and reduce the human impacts of arsenic contamination. Up to 60 million people are threatened with unsafe drinking water.
- In Thailand, nuclear methods help food companies fortify basic foodstuffs and eliminate malnutrition in mothers and children.
- In Ethiopia, Brazil and Sri Lanka, women are being successfully treated for deadly breast and cervical cancer using radiotherapy equipment and training provided by the IAEA.
- In the Philippines, the dangers posed to seafood consumers by toxic algae are being reduced through nuclear techniques provided by the IAEA.

“Guatemala has an indispensable ally on its development path: the IAEA. Thanks to national and regional projects, Guatemala has applied nuclear technologies to solve problems of health, agriculture, industry, energy and the environment.”

– Guatemalan Minister of Energy and Mines,
Raul Arcila Serrano

The livelihoods of these Masai boys in Tanzania is being undercut by a cattle disease carried by tsetse flies. The flies cost Africa some \$4.5 billion every year. IAEA has shown that a nuclear application known as the 'sterile insect technique' is a suitable tool in the campaign to eradicate the tsetse and is introducing SIT to a select number of African countries.



“The discovery of nuclear chain reactions need not bring about the destruction of mankind any more than did the discovery of matches. We only must do everything in our power to safeguard against its abuse. Only a supranational organization, equipped with sufficiently strong executive power, can protect us.”

– Albert Einstein, 1953

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