

# Plus90 & Counting...

## Countries Rise to the Challenge of **Radiation Safety**

**Radiation science is the source** of tools and technologies that help to address some of the most pressing issues of our times — human health, food and agriculture, industry, energy and environmental management. In many cases, the data and information gathered by applying radiation-based technologies simply cannot be obtained through any other means. Nor can the impressive results.

Consider these figures. On average, over 25 million nuclear imaging procedures are carried out per year around the world to diagnose disease; annually, almost 10 million people benefit from radiopharmaceuticals (radioactive drugs), often in the context of cancer treatment. At the same time, advanced molecular and radioisotope techniques are being used to develop more effective measures to combat infectious diseases such as malaria, hepatitis, and tuberculosis.

Techniques to fortify staple food crops provide vital nutrients to populations that have enough to eat, but lack the variety needed to be well-nourished. The ability to eliminate harmful bacteria and pests from the surface of raw produce enhances storage and transport — and opens opportunities to export markets.

Radiation-based technologies, many of which have proven effective over decades of use in the developed world, now contribute to virtually every sector of society. In keeping with the underlying principles of the United Nations, the IAEA is committed to ensuring that all of its Member States have equal access to the advantages offered by these powerful tools. In return, the States must accept the responsibility for protecting the public and the environment from radiation exposure.

Yet about once every other day, authorities at one of the world's busiest ports — Rotterdam in The Netherlands —

detect radioactive material in shipments of scrap metal coming through their docks. Mostly the sources of radiation are pieces of old hospital equipment or industrial instruments that do not pose high health risks.

The scrap metal traffic raises serious questions about how well, or how poorly, radioactive material and sources are controlled by suppliers, users, and governments worldwide. Additional risks are evident in the face of terrorist threats and reported cases of illegal nuclear trafficking. In 2003, an IAEA global press campaign spotlighted the issue of inadequate controls on radioactive sources — just one aspect of the larger issue of radiation safety security and protection of workers, the public and our shared environment.

The series of stories featured in this edition of the *IAEA Bulletin* chronicles one of the IAEA's most ambitious and progressive undertakings — a strategic effort to upgrade national infrastructures for radiation protection — engaging governments and experts in more than 90 countries. The stories illustrate the intense preparations required to build up scientific expertise, as well as legal and regulatory infrastructures. They also reflect the IAEA's strict adherence to a code of conduct, which all Member States uphold, that makes safety an indisputable pre-requisite of technology transfer.

Radiation-based technologies are not unique in the fact that their potential benefits carry inherent risks; this is a characteristic of all innovation. The most important outcome of this project is that developing countries around the globe are making measurable, steady progress toward managing both aspects — and thereby safely incorporating radiation-based technologies into the suite of tools that will allow them to shape their own futures.