THE IAEA & Y2K

THE AGENCY'S ACTION PLAN ON THE YEAR 2000 PROBLEM

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Nearly four years ago, the IAEA started developing an action plan to address the Year 2000 computer problem, largely with respect to internal computing systems and databases supporting Agency programmes and services for its 129 Member States. Work has progressed steadily since then to encompass a wide range of activities, including those to assist national nuclear authorities who are responsible for their country's Y2K readiness efforts in specific areas.

In September 1998, the IAEA General Conference adopted a resolution that urged Member States "to share information with the Secretariat regarding diagnostic and corrective actions being planned or implemented by operating and regulatory organizations at their nuclear power plants, fuel cycle and/or medical facilities which use radioactive materials to make these facilities Y2000 ready".

It also encouraged the Secretariat, "within existing resources, to act as a clearinghouse and central point of contact for Member States to exchange information regarding diagnostic and remediation actions being taken at nuclear power plants, fuel cycle and/or medical facilities which use radioactive materials to make these facilities Y2000 ready".

The General Conference further emphasized that, "if they have not already done so, Member States should take all necessary efforts to have contingency plans in place at operating and regulatory organizations well before 31 December 1999 in order to handle potential problems which may arise at that time at those nuclear facilities".

The Agency's Action Plan in response to the resolution focuses on a number of key elements. They cover compiling information,

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developing documents that provide guidance for the identification of potential Y2K computer system problems, together with suggested remedial actions, and offering a forum for information exchange. The Plan also presents measures to address potential difficulties in the Agency's own operations during the transition to the year 2000 and other critical dates, as well as possible assistance to Member States in this area. It further notes the Secretariat's intention to address the Y2K problems at research reactors and waste management facilities in addition to nuclear power plants, fuel cycle facilities and medical facilities which use radioactive materials.

The main steps that the IAEA Secretariat has initiated to address the Y2K issue concern the development of guidance documents *(see box, page 17)*; the exchange of information and experience with and between Member States; assistance and services to Member States; and communications with Member States. The IAEA advised each Member State to evaluate the information received from the Secretariat and to make its own independent judgement as to the information's value and applicability with regard to Y2K compliance. Accordingly, Member States were advised that the Secretariat cannot accept any responsibility or liability as regards their use of any information received from the Secretariat relating to the Y2K issue.

In this edition of the *IAEA Bulletin,* feature articles highlight the Agency's major activities relating to the Y2K issue, as well as follow-up actions planned through the Year 2000 transition. They cover aspects related to nuclear power plants and research reactors; nuclear fuel cycle and waste management facilities; medical facilities; and safeguards and physical protection of nuclear material. Major components of these activities include organizing seminars and workshops on different types of facilities and computerized information systems; coordinating review missions to assist Member States in achieving Y2K compliance at nuclear power plants and also in State Systems of Accounting and Control of nuclear material for safeguards purposes. A number of missions, which included experts provided by IAEA Member States, already have taken place and others are planned. Extrabudgetary funds were received from Australia, Japan, the Netherlands, the United Kingdom, and the United States for Y2K review missions to nuclear plants.

This article focuses on the Y2K status of the IAEA's internal systems and operations, and highlights main components of Y2K coordination within the United Nations System.

IAEA SYSTEMS & OPERATIONS

With regard to the Agency's own operations, all computer applications for the infrastructure of information technology and information systems, including those in the area of safeguards, are expected to be Y2K compliant by October 1999.

Work on the Y2K problem began in December 1996 and has been coordinated through an Agencywide Year 2000 Task Force. Regular meetings have been held since then and will continue to be held to discuss application verification and conversion for Y2K compliance of all computing platforms. Assistance and guidance to all application systems development staff and users is regularly provided, including training and distribution of guidance documents. One of the first training sessions for application development staff on Y2K testing was held in June 1998.

A number of key systems -- namely those systems whose normal operation are essential to the Agency's work and objectives — have been identified.

Regarding the software and hardware infrastructure, they include the central computing environment (electricity, air circulation, fire alarms, access security, secondary diesel power supply); network hardware supporting internal and external communications; mainframe facilities supporting Agency information systems, including those for the United Nations Industrial Development Organization (UNIDO), United Nations Office at Vienna (UNOV), and United Nations Relief and Works Agency (UNRWA) at the Vienna International Centre; all backup facilities; hardware and software required for Agency information systems and Internet communication internally, with other United Nations organizations, and Member

IAEA TECHNICAL DOCUMENTS ON THE Y2K COMPUTER PROBLEM

- ***Achieving Year 2000 Readiness: Basic Processes***, IAEA TECDOC-1072
- ***Safety Measures to Address the Year 2000 Issue at Radioactive Waste Management Facilities***, IAEA TECDOC-1073
- ***Safety Measures to Address the Year 2000 Issue at Medical Facilities Which Use Radiation Generators and Radioactive Materials,*** IAEA TECDOC-1074
- ***Potential Vulnerabilities of Nuclear Fuel Cycle Facilities to the Year 2000 Issue and Measures to Address Them,*** IAEA TEC-DOC-1087
- ***The Impact of the Year 2000 Date Conversion on Electricity Grid Performance and Nuclear Power Plant Operation in Bulgaria, Russia, and Slovakia,*** IAEA TECDOC-1095.

All documents are accessible in electronic form on the IAEA's WorldAtom Web site at: http://www.iaea.org/worldatom/y2k/y2k-docs.html

States; related server equipment and operating system software, including major components such as database systems, electronic mail and other application-related products.

With respect to information system applications, key components include finance, procurement, personnel and publishing in the Department of Management; global databases for energy and nuclear power statistics in the Department of Nuclear Energy; the International Safeguards Information System (ISIS), and systems related to inspection and illicit trafficking in the Department of Safeguards; the Technical Co-operation Experts Management System, and systems related to project and field procurement in the Department of Technical Cooperation.

By April 1999, out of 36 components of the information technology infrastructure, 20 had been tested or converted to be Y2K compliant. The testing and verification of the other components is in progress. Concerning information systems, 128 out of 159 applications have been tested or converted to be Y2K compliant and five applications will be discontinued or moved to other Y2K compliant systems. The information technology infrastructure and information system applications are expected to be Y2K compliant by October 1999.

The Department of Safeguards has identified more than 90 different types of instrument systems as being possibly at risk and expects to have them all Y2K ready by October 1999. In addition, of the 16 types of instrument systems which are jointly in use with Member States at facilities, most are already Y2K compliant, and the rest will be converted by Member States by October 1999.

The Division of Budget and Finance has three major systems for which Y2K processing is a concern. They are the payroll system, the travel system, and the financial management system. The payroll and travel systems are Y2K compliant since the year is stored as a four character field in both systems. Nevertheless, they will be tested for Y2K compliance during 1999.

The existing financial management system used by the Agency is not Y2K compliant, though the supplier of the software has had Y2K compliant versions available to all customers holding a current maintenance support agreement. The Agency decided, however, not to assign resources to implement these new versions. Rather, it was deemed more appropriate to take the opportunity to develop a new financial system not only to meet Y2K needs but also to respond to user requests from other Departments in the Agency for greater functionality. Consequently, the Agency's Financial Information Management System project was conceived, based on software that is Y2K compliant. There is confidence that the system will be ready on time and successfully introduced into production by 1 January 2000.

The Secretariat has been in contact for some time with major vendors and suppliers providing products and services to the Agency in order to determine which upgrades or alterations are needed to make these products Y2K compliant.

Concerning the equipment to be provided by the Agency to developing Member States in the framework of technical co-operation projects, as of June 1998 all purchase orders require the contractor to certify that all goods delivered will accurately process dates and times for the 20th and 21st centuries, including leap year calculations, when used in accordance with the product documentation provided by the contractor. Member States are responsible for ensuring that all equipment already in their possession, including equipment obtained through the Agency's technical co-operation programme, is Y2K compliant.

CONTINGENCY PLANS

Year 2000 risk assessment and contingency planning is an essential part of the Action Plan. The assessment, in combination with the contingency planning, minimizes potential failures that may be encountered and ensures operational continuity before and beyond the year 2000. In addition to this, it minimizes any adverse impact on Agency programmes, communication with Member States and internal administrative demands. The process includes careful planning for emergencies as well as recovery and, if required, the provision of alternate means, such as manual procedures instead of the existing electronic data processing, in case of potential difficulties.

Contingency planning efforts encompass all of the Agency's key systems. Risk assessment and contingency planning for potential impacts in the case of failures and disruptions during the millennium changeover was started in the third quarter of 1998. Members of the Y2K Task Force identified key application systems and specified priorities at that time.

The development of an emergency plan before and after the millennium crossover is under way and will be completed by October 1999. It consists of a crisis centre with a co-ordinator, key staff coverage for support from all Departments, and applicable manual procedures if system procedures fail. Power failures potentially affecting the Agency's headquarters and central computing facilities have been evaluated and remedies will be tested during October. This will be done together with Buildings Management offices of the Vienna International Centre (VIC) and third-party suppliers of electrical power and in-house facilities.

Emergency diesel generators will be in operation to support essential facilities and provide the necessary power for an extended period of time for the United Nations Security and Safety Service, fire elevators, emergency lights and the central computing environment. In the case of longer emergency periods, tanks can be refilled with fuel to provide required electrical power.

The computing and electronic facilities of the VIC Medical Service are also included in the contingency plan in order to provide uninterrupted services to all United Nations organization staff and their dependents.

COORDINATION IN THE UN SYSTEM

In December 1998, the UN General Assembly adopted a resolution calling "upon Governments, public and private sector organizations and civil society to share locally, regionally and globally information about their experiences in addressing the year 2000 problem". It requested the Secretary-General to take steps to ensure that all parts of the United Nations system take measures to ensure that their computers and equipment with embedded microprocessors are year 2000 compliant well before the target date by drawing up a plan of action for the United Nations system.

The United Nations General Assembly also requested the Secretary-General "to ensure that the United Nations system closely monitors actual and potential sources of funding to support the efforts of the developing countries and countries with economies in transition to address the Year 2000 problem, and to facilitate the dissemination of relevant information on those funding possibilities to the Member States". The General Assembly urged, in the resolution, "all Member States to emphasize the importance of contingency planning and to develop such plans to address the potential for possible large scale failures in the public and private sectors".

A number of steps have been taken to ensure that there is a co-ordinated response by the United Nations system to the

Y2K issue. Different organizations could face similar problems arising from the interruption of services at headquarters and in the field, particularly energy services, telecommunications, transport, financial and other essential services. A system-wide co-ordinated approach is being taken to deal with contingency planning and logistics, as well as financial and personnel matters. This was the subject of discussions at meetings of the Consultative Committee on Administrative Questions of the United Nations in February and March 1999. Guidelines are being developed to mitigate the impact of any disruption to banking, payroll and other financial operations. Contingency plans, crisis management teams, and standby staff have been drawn up on the basis of risk assessment. The security and safety of staff in the context of Y2K concerns are being addressed by the United Nations Security Coordinator.

Similarly, information is being exchanged between United Nations organizations on ways of addressing Y2K issues through the Inter-Organizational Information Systems Coordination Committee (ISCC). Responses to questionnaires, updated every three months, and guidance documents developed by the different agencies are shared by information system managers in the various organizations of the United Nations system through the ISCC.

The Agency is in constant communication with Vienna-based United Nations organizations on approaches and solutions to Y2K issues as it supplies information technology infrastructure services to some of these organizations. UNIDO has a Facility Management Agreement with the Agency that covers the support of mainframe, Internet and network platforms. Some UNOV applications are executed under the UNIDO mainframe environment. With UNIDO's concurrence, hardware and software components, some of which are part of the Agency's computing infrastructure, have been tested and converted for Y2K compliance. It remains UNIDO's responsibility to test and convert their application information systems for Y2K readiness.

UNIDO, UNOV, the Preparatory Commission for the Comprehensive Nuclear Test Ban Treaty Organization (CTBTO), and the United Nations Drug Control Programme have Web servers for Internet and firewall systems that are located at the Agency. In addition, the UNDCP has production server equipment there. In the event they are needed, electrical diesel power facilities used for the Agency's central computing environment are available for these organizations.

Y2K ON WORLDATOM

Through the Agency's *WorldAtom* Internet site, the Secretariat, in mid-February 1999, opened a series of Web pages that were developed by the Division of Public Information to co-ordinate the global exchange of information on the Agency's Y2K activities and related topics. The site *(http://www.iaea.org/worldatom/program/y2k)* is designed as a one-stop directory for information about Y2K activities in the Agency, its Member States, and international organizations within and outside the United Nations system.

The site covers four broad categories: documents and reports; information about Agency activities related to nuclear safety, radioactive waste management, medical facilities, safeguards, and internal computer systems; current news and viewpoints of experts; and links to other Y2K Internet information resources, including sites that have been set up in more than two dozen countries. In addition, the site features access to an extensive range of additional information about activities of the Agency and its Member States.

An interactive feature is an on-line news and discussion forum through which interested scientists, government officials, journalists, and members of the public can exchange information by electronic mail. The news group has about 100 registered participants.

As the weeks and days wind down to the year 2000, more information about the Agency's Y2K activities and about steps being taken in Member States will be added to the *WorldAtom* site. Additionally, more links will be added to authoritative news and information sources at national and international organizations to help track the status of Y2K readiness programmes in energy and other sectors. ❑