

SAFEGUARDS

Regular Budget expenditure: \$87 556 631

Expenditure by subprogramme

<i>Safeguards operations</i>	\$65 408 860
<i>Safeguards support and development</i>	\$19 222 724
<i>Safeguards management</i>	\$2 925 047

Extrabudgetary programme resources utilized (not included in chart): \$12 621 340

Note: An amount of \$5 859 479 for implementation of United Nations Security Council Resolution 687 on Iraq is not included in the extrabudgetary figure

Safeguards Statement

In fulfilling the safeguards obligations of the Agency in 1995, the Secretariat did not find any indication that nuclear material which has been placed under safeguards was diverted for any military purpose or for purposes unknown, or that safeguarded facilities, equipment or non-nuclear material were misused. All the information available to the Agency supports the conclusion that the nuclear material and other items which were declared and placed under Agency safeguards remained in peaceful nuclear activities or were otherwise adequately accounted for.

The Agency is still unable to verify the correctness and completeness of the initial declaration of nuclear material made by the DPRK and is therefore still unable to conclude that there has been no diversion of nuclear material in the DPRK. The safeguards agreement between the DPRK and the Agency remains in force, and the Agency is continuing to implement safeguards measures in the DPRK under this agreement including the monitoring of the “freeze” on the DPRK’s graphite-moderated reactors and related facilities, as requested by the United Nations Security Council and as foreseen in the “Agreed Framework” of October 1994 between the DPRK and the USA.

The Agency has been endeavouring to strengthen its capability for detecting undeclared nuclear material, facilities and activities. A number of measures designed to strengthen that capability have been implemented while others are either in the process of being implemented or are under development.

As of 31 December 1995, 207 safeguards agreements were in force with 125 States (and with Taiwan, China), compared with 200 agreements with 119 States (and with Taiwan, China) at the end of 1994.

Safeguards agreements pursuant to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) entered into force with Croatia in January, Myanmar in April, Zimbabwe in June and Belarus and Kazakhstan in August. A safeguards agreement pursuant to NPT and the Treaty of Tlatelolco entered into force with Bolivia in February. A safeguards agreement with Chile pursuant to the Treaty of Tlatelolco entered into force in April. A sui generis comprehensive safeguards agreement with Ukraine entered into force in January.

Sweden acceded to the safeguards agreement between the non-nuclear-weapon States of EURATOM, EURATOM and the Agency on 1 June, and Finland did so on 1 October.

The Government of Cuba informed the Agency that it had decided to terminate the construction of the research reactor which was to be supplied by the former USSR.

Consequently, the Agency's Board of Governors took note that the unilateral submission agreement with Cuba had terminated.

The Board of Governors approved a draft safeguards agreement with Barbados pursuant to NPT and the Treaty of Tlatelolco, and with Moldova and Ukraine pursuant to NPT. None of these agreements had entered into force at the end of 1995.

As of 31 December 1995, safeguards agreements were in force with 108 States pursuant to NPT. For 67 non-nuclear-weapon States party to NPT there is no safeguards agreement in force. As far as the Agency is aware, six of these States have significant nuclear activities. Out of these six, safeguards were being applied in four (Argentina, Chile, Colombia and Ukraine) pursuant to other comprehensive safeguards agreements, in one State pursuant to INF-CIRC/66/Rev.2-type safeguards agreements (Algeria) and preparatory work for the application of safeguards is under way in the sixth State (Georgia).

NPT safeguards agreements are in force with all 11 signatories of the South Pacific Nuclear Free Zone Treaty (Rarotonga Treaty); safeguards were applied in one of these States (Australia) pursuant to such an agreement.

Twenty-two of the 30 States party to the Treaty of Tlatelolco have concluded safeguards agreements with the Agency pursuant to that Treaty and at the end of 1995 safeguards agreements pursuant to the Treaty of Tlatelolco were in force with 19 States. Safeguards agreements pursuant to Additional Protocol I of the Treaty of Tlatelolco are in force with two States (Netherlands and the USA) with territories in the zone of application of the Treaty, and a similar agreement with a third such State (United Kingdom) has been approved by the Board of Governors, but has not yet entered into force. In June 1995, with a view to the early entry into force of safeguards agreements pursuant to NPT and the Treaty of Tlatelolco, the Board of Governors authorized the Secretariat to confirm, through an exchange of letters with the relevant States in the Latin America and Caribbean region, that:

- Comprehensive safeguards agreements concluded pursuant to the NPT satisfy the requirement under Article 13 of the Treaty of Tlatelolco for Contracting Parties to conclude safeguards agreements with the Agency;

- Comprehensive safeguards agreements concluded pursuant to the Treaty of Tlatelolco alone satisfy the requirement under Article III.1 of the NPT for non-nuclear-weapon States to conclude safeguards agreements with the Agency;
- The quadripartite safeguards agreement between Argentina, Brazil, the ABACC and the Agency satisfies the requirement of a State Party under either the Treaty of Tlatelolco or the NPT to conclude a comprehensive safeguards agreement.

At the request of the United Nations Security Council, the Agency has maintained a continuous inspector presence in the Nyongbyon area in the DPRK since May 1994. At the request of the Security Council, and as authorized by the Board of Governors, the Agency has since November 1994 monitored the freeze on the DPRK's graphite moderated reactors and related facilities as provided for in the "Agreed Framework" between the USA and the DPRK of 21 October 1994. The DPRK has enabled the Agency to implement specific safeguards measures and the safeguards activities, but has declined to accept other activities, such as the monitoring of nuclear liquid wastes at the reprocessing plant (Radiochemical Laboratory) and measurements of the plutonium content of spent fuel at the 5 MW(e) Experimental Nuclear Power Plant reactor. In addition to the safeguards activities carried out at facilities subject to the freeze (the Radiochemical Laboratory, Nuclear Fuel Rod Fabrication Plant, 5 MW(e) reactor, 50 MW(e) Nuclear Power Plant and the Taechon Nuclear Power Plant which is presently under construction), the Agency conducted inspections in 1995 at DPRK facilities not covered by the freeze (IRT Research Reactor, Critical Assembly, Nuclear Fuel Rod Storage and Sub-Critical Assembly). Other issues remain open.

The Agency's safeguards obligations in Iraq continued to be subsumed under the mandate assigned to the Agency by resolutions of the United Nations Security Council. Since August 1994, the Agency has maintained a continuous presence in Iraq to carry out monitoring and verification inspections to confirm that country's compliance with the relevant Security Council resolutions. In addition, the Agency conducted two inspections in 1995 to clarify specific matters relating to Iraq's past nuclear weapons programme.

In August 1995, the Agency received additional information on Iraq's former nuclear weapons programme in the form of new statements and numerous documents and materials transmitted to the Agency and the United Nations Special Commission by Iraq following the

departure to Jordan of Lieutenant General Hussein Kamel, the former Iraqi Minister of Industry and Military Industrialization. According to this additional information, a crash programme to produce a nuclear weapon had been launched shortly after Iraq's invasion of Kuwait (on 2 August 1990). This programme foresaw the extraction of the high enriched uranium (HEU) contained in the safeguarded research reactor fuel stored at the Iraqi nuclear research centre in Tuwaitha and its transformation into weapons-usable HEU metal. On 17 January 1991, the programme was effectively brought to a halt by the damage inflicted on Tuwaitha by air raids, which destroyed the building where the uranium extraction was planned before any processing of the fuel could occur. By this time, however, the chemical equipment needed to extract the uranium had been manufactured, installed and commissioned in a hot cell facility at Tuwaitha. The additional information is being examined for any new data which might affect the Agency's former assessment that Iraq's practical capability to manufacture nuclear weapons had been destroyed, removed or rendered harmless.

Safeguards Operations

During 1995, work on the verification of the nuclear material specified in the initial report pursuant to the safeguards agreement between Argentina, Brazil, the ABACC and the Agency and verification of facility design information was largely completed. This included verification activities at a gaseous diffusion enrichment facility in one of these States. Major installations in both States were also visited to verify the completeness and correctness of the initial report.

Following the entry into force of the comprehensive safeguards agreement with Chile pursuant to the Treaty of Tlatelolco, activities for the verification of the initial report provided pursuant to this agreement were carried out.

Considerable safeguards work was carried out in the newly independent states (NIS) of the former USSR, in particular:

- Initial inventory verifications pursuant to the sui generis safeguards agreement with Ukraine started in April.
- Verification of the initial inventory began pursuant to the NPT safeguards agreement with Belarus.
- Initial inventory verifications were undertaken pursuant to the NPT safeguards agreement with Kazakhstan. Special equipment for monitoring transfers of breeder fuel from the reactor, as well as surveillance systems, were put into operation.

Verification activities in 1995

	1993	1994	1995
Inspections performed	2 042	2 349	2 285
Person-days of inspection	8 153	9 152	10 167
Seals applied to nuclear material or safeguards equipment detached and subsequently verified (including seals applied jointly with a group of States)	20 755	21 746	23 877
Optical surveillance films reviewed	2 847	2 408	2 638
Video tapes reviewed	3 072	2 937	3 807
Inspection samples analysed	1 211	1 590	1 246
Analytical results reported	3 000	2 579	2 559

Development of a safeguards system for the CANDU 600 nuclear power complex in Romania proceeded according to schedule for Unit 1. The initial core loading was verified by the Agency. The reactor underwent hot performance tests in the last part of 1995, and the fuel handling systems were commissioned.

Some progress was made in the negotiation of Subsidiary Arrangements, one new and six revised General Parts of Subsidiary Arrangements (one new and five revised in 1994) and 16 facility attachments (7 new and 9 revised) (29 in 1994) entered into force.

A safeguards project between the Agency, China and the Russian Federation was agreed in September. The objective is to establish a basis for applying effective and efficient safeguards at the enrichment plant presently under construction at Han Zhong in China.

As a result of the decision announced by the President of the USA in September 1993 to submit to Agency safeguards excess nuclear material released from the US military programme, the Agency carried out monthly interim inspections at one site containing HEU and at one site containing plutonium. Safeguards activities in the USA increased considerably in 1995 as additional nuclear material was placed under safeguards. The initial verification was carried out on the newly received plutonium at one site in August. In April, a new storage facility was added by the USA to the eligible list and subsequently selected by the Agency for the implementation of safeguards. The verification of the initial inventory of plutonium at this site

began in early December. Further, following the President's decision on 1 March 1995 to permanently withdraw 200 tonnes of fissile material from the US nuclear stockpile, consultations were held to discuss the implementation of Agency safeguards on the material concerned.

Safeguards Support and Development

The Director General reported to the Board of Governors in March on proposed measures for strengthening the present safeguards system ("Programme 93+2"). The report discussed the interrelationship of the various measures and how their synergistic effect would increase the level of assurance that could be attained. Each measure was described in detail in terms of its cost or effort, technical and legal aspects (whether the Secretariat would implement the measures on the basis of existing legal authority or whether complementary authority would be sought). The Board endorsed the general direction of Programme 93+2 and reiterated its support for a safeguards system designed to provide credible assurance of the non-diversion of nuclear material from declared activities and of the absence of any undeclared nuclear activities. This support was also reflected in the strong endorsement in April at the NPT Review and Extension Conference of the work of the Agency to strengthen further the effectiveness of safeguards. As requested by the Board of Governors at its March meeting, the Secretariat submitted for the Board's consideration in June a comprehensive set of measures to strengthen and enhance the effectiveness of safeguards in two parts. Part 1 consisted of those measures which could, in the Secretariat's view, be implemented under existing legal authority and which it would be practical and useful to implement at an early date. Part 2 consisted of those measures which the Secretariat proposed for implementation on the basis of complementary authority. The Board accepted the Director General's plan to implement at an early date the measures described in Part 1. The General Conference endorsed the actions taken by the Board in March and June.

Following the meeting of the Board in June, a detailed implementation plan was developed. This provided the basis for a letter sent in November to States party to comprehensive safeguards agreements describing the actions the Secretariat had identified as being necessary to proceed further. The letter indicated that the Secretariat would undertake implementation of Part 1 measures, starting in 1996, as broadly and extensively as possible, subject to operational and budgetary constraints. Some measures are currently being implemented.

A draft discussion paper containing additional details on the Part 2 measures to be implemented under complementary authority was discussed by the Board of Governors during its meeting in December. The paper contained a draft protocol to comprehensive safeguards agreements that the Secretariat is proposing as the means by which States can provide the Agency with the authority to implement the Part 2 measures. The Secretariat was asked to consider all the comments made by Member States when finalizing and fine-tuning its proposals for Part 2 of Programme 93+2 for Board action.

The Safeguards Analytical Laboratory (SAL) and the Network of Analytical Laboratories (NWAL) performed 1752 measurements for calibration and quality control on non-destructive analysis (NDA) techniques, for certification of secondary reference samples, for maintenance and improvement of off-site destructive analysis (DA) and for testing procedures for on-site DA. In addition, 2931 measurements were performed by SAL and the NWAL for the routine quality control of the analysis of inspection samples. SAL also assisted in the measurement of samples taken in Iraq during inspections carried out pursuant to United Nations Security Council resolutions. A total of 70 analytical results were reported by SAL on environmental type samples taken during routine or ad hoc inspections as well as field trials under Programme 93+2. The median times required to complete verification by off-site DA were 52 days for uranium, 59 days for plutonium and 59 days for spent fuel samples.

The construction of a clean laboratory for safeguards analytical work was completed. Procedures for measuring environmental samples in the laboratory were developed and tested. The primary isotopic mixes required for the preparation of reference materials for performance evaluation of the clean laboratory and of network laboratories were also completed. Samples of these reference materials were distributed to selected laboratories.

As part of Programme 93+2, environmental sampling field trials were conducted. In support of the decision to proceed with the implementation of measures contained in Part 1 of Programme 93+2, guidelines were developed for the planning, collection and analysis of swipe samples at enrichment plants and hot cell facilities. A review was carried out in December of the experience gained in the course of the field trials and there was discussion of the establishment of an effective and efficient analytical services network.

At its meeting in February 1993, the Board of Governors endorsed the establishment of a reporting scheme for nuclear material and specified equipment and non-nuclear material as a means of strengthening the Agency's safeguards system. The Board further expressed the hope that subscription to the scheme, which will be voluntary in nature, would become universal. Information received by the reporting scheme is used on a routine basis as part of the more systematic analysis by the Agency of information about nuclear activities. To date, 52 Governments and the European Union have indicated that they intend to participate in the reporting scheme, with 35 of these States and the European Union having already submitted information.

Activities in 1995 in the New Partnership Approach (NPA) with EURATOM included a review of Agency and EURATOM equipment needs for 1995 and 1996 encompassing the replacement of obsolete equipment and verification needs at new facilities. Common training courses for Agency and EURATOM inspectors were organized. The sharing of analytical capabilities using a mobile mass spectrometer for inspections at low enriched uranium (LEU) fuel fabrication and enrichment plants was initiated, thus reducing the cost of transporting and analysing samples at each organization's analytical laboratory.

As part of the development of Programme 93+2, and with the co-operation of a Member State, a six month field trial was initiated to demonstrate a remote monitoring system at a storage vault for MOX fuel. The system includes self-contained digital video cameras, and features

the authentication and encryption of the surveillance data, as well as remotely verifiable seals. Sophisticated power monitoring and control, front end scene change detection and backup scene and data storage are integral parts of the digital camera. Surveillance images and data are transmitted to the Agency by means of low cost, ultra-small aperture satellite communications. Inspector review is carried out using a computer based review station. The results of the field trial will be evaluated as part of an overall study of remote monitoring systems.

Actions to improve the performance of modular integrated video surveillance systems were implemented, including: modifications for increased immunity to mains power anomalies and electromagnetic interference; training for inspectors in troubleshooting, problem diagnosis and corrective actions; improvements to facility power sources; improvements in the availability and distribution of spare components; and improvements in performance monitoring. As a result, the mean time between failure of these systems improved from 30 months in 1994 to 50 months in 1995.

The extrabudgetary Member State support programmes continued to provide major contributions to the research and development and safeguards implementation support activities. Some 250 projects addressing safeguards needs identified by the Agency were under way, and about 60, were completed. During the year, bilateral meetings were held to review the status and activities of all the programmes.