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THE IMPLEMENTATION OF UNITED NATIONS SECURITY COUNCIL RESOLUTIONS RELATING TO IRAQ

Report by the Director General

1. On 22 September 1995, the General Conference adopted, as it had in previous years, a resolution in operative paragraph 8 of which it requested the Director General to report to the Board of Governors and the fortieth regular session of the General Conference on his efforts to implement United Nations Security Council resolutions 687, 707 and 715 (1991) relating to Iraq (GC(39)/RES/5) .
2. Since the adoption of the resolution by the General Conference, the Director General has periodically kept the Board and other Member States of the Agency informed on the implementation of relevant Security Council resolutions by means of reports on the 28th and 29th on-site inspections in Iraq and communications and the semi-annual reports addressed by him on the subject to the Secretary-General of the United Nations for submission to the Security Council.^{1/}
3. The report in the attachment provides information on the Agency's inspection activities in Iraq covering the period September 1995 - August 1996 and includes as an Annex the chronology of the major events that occurred during this period.

^{1/} See documents GOV/INF/776 dated 24 October 1995, GOV/INF/781 dated 6 December 1995, GOV/INF/782 dated 19 January 1996, GOV/INF/783 dated 22 January 1996 and GOV/INF/791 dated 22 April 1996.

**Report by the Director General on the implementation
of United Nations Security Council resolutions relating to Iraq**

I. Introduction

1. Document GOV/INF/776, dated 24 October 1995, contained the text of the eighth six-monthly report, submitted by the Director General to the United Nations Security Council in accordance with paragraph 8 of resolution 715 (1991), summarising the status of the Secretariat's understanding of Iraq's past covert nuclear programme and describing the activities related to the implementation of the IAEA plan for ongoing monitoring of Iraq's compliance with its obligations under UN Security Council resolutions. The report also addressed the potential impact of the information contained in the large documentation cache handed over on 20 August 1995 at the end of the visit of the joint IAEA-UNSCOM delegation to Iraq. Since the issue of GOV/INF/776, the Secretariat has carried out three inspection missions in Iraq - IAEA-28 (September 1995), IAEA-29 (October 1995) and IAEA-30 (May - July 1996). The main objective of IAEA-28 and IAEA-29 was to follow-up on information contained in the documentation cache or directly received from the Iraqi counterpart. Reports of these inspections are contained in documents GOV/INF/781 and GOV/INF/783 dated 6 December 1995 and 22 January 1996 respectively.

2. The purpose of IAEA-30 was to review the draft of the Full, Final, and Complete Declaration (FFCD) provided by Iraq on 1 March 1996. This review, which will still require some time to complete, aims at clarifying ambiguities, inconsistencies and contradictions found in the draft, securing the inclusion of additional details and at obtaining documentation to support the correctness and completeness of the declaration.

The Secretariat has also entered into discussions with the Iraqi counterpart during routine monitoring activities in order to further clarify the aforementioned information and with the assistance of experts from Member States, has carried out a detailed examination of centrifuge enrichment-related drawings and correspondence contained in the documentation cache. A similar analysis is in progress on weaponisation-related documentation.

II. Discussions with the Iraqi counterpart

A. The reactor project

3. The history of the development of an indigenous nuclear reactor (Project 182) was discussed with the Iraqi counterpart in November 1995. The discussions opened with a description by the counterpart of the scope of Iraq's planned nuclear power programme which had originated in 1975 and with international assistance, had developed from modest plans to acquire a single 600 MWe unit, to involve the progressive construction of four to six power plants by the year 2010. Although these plans had been further modified in the mid 1980s, no practical progress had been made in the acquisition of nuclear power plants other than the identification of four possible sites suitable for the location of nuclear power plants.

4. The counterpart explained that Iraq's feasibility studies on the underground siting of reactors and other fuel cycle related installations, had been aimed exclusively at providing protection from aerial attack and that the strategy had been abandoned due to its prohibitive cost. The counterpart further explained that, although it had been managed by the same IAEC department, Project 182, relating to the construction of a research reactor, had been an entirely separate study. This project - which foresaw the construction of an indigenous research reactor to replace the capability that would have been provided by the Osirak (Tamuz-1) research reactor - had originated in 1984/85 after the breakdown in Iraq's negotiations with France for the rebuilding of the Osirak reactor. The Project 182 reactor was explained to have been a natural uranium - heavy water type, similar to the Canadian NRX reactor. When the project had become more defined, in 1987 and 1988, studies had concentrated on the design of the reactor core. As this work progressed it was recognised that considerable IAEC and foreign resources would be needed to bring the project to fruition. In mid-1988, while still in the study phase, the project was allowed to lapse due to lack of available resources - a consequence of the higher priority given to the needs of the EMIS enrichment programme. The counterpart also stated that studies on the indigenous production of heavy water had not progressed beyond surveys of technical literature and preliminary laboratory measurements.

B. Uranium enrichment

5. During the month of December 1995 the Secretariat, assisted by experts from Member States, held discussions with the counterpart to further explore the progress that had been made in chemical (solvent extraction) and ion-exchange methods for the enrichment of uranium, before the outbreak of the Gulf war.

The counterpart stated that full disclosure of these activities had already been made during the talks which took place during the early (1991) inspections, and maintained that this information was corroborated by the original documentation obtained during the IAEA-6 inspection. However the discussions focused on obtaining additional technical details on activities and achievements.

The counterpart reconfirmed that all of the activities carried out had taken place at the Nuclear Research Centre, Tuwaitha, except for the production of tri-butyl phosphate which, together with some theoretical work on crown ethers, had been done at Muthanna. The motivation to develop the chemical enrichment process had been Iraq's wish to enhance the capability of the EMIS (Electromagnetic isotope separation) process by feeding low enriched instead of natural uranium.

6. Iraq appears to have done only limited, basic laboratory-scale work in solvent extraction for uranium enrichment. However, the counterpart expressed confidence that Iraq could have addressed the practical problems that would have arisen during scaling-up. At the time it had been in the process of procuring components for a pilot plant to produce four tonnes per year of 1 to 1.2 % enriched uranium. Concerning ion exchange enrichment technology, the counterpart stated that approach was promising, but that a lot of work was needed, as experience with it was limited in Iraq. The results of laboratory scale experiments, using indigenously produced ion exchange resins, were stated to have been modest and a similar project for a pilot plant to produce four tonnes per year of up to 3%

enriched uranium had not gone beyond the preliminary assessment of equipment and material requirements.

According to the counterpart, the most promising project, though still at the conceptual design stage in late 1990, combined both enrichment methods in an hybrid process having a solvent extraction first stage and an ion exchange output stage, in order to produce up to 5 tonnes per year of 4 to 8% enriched uranium.

7. The counterpart was also asked to further clarify the achievements made with respect to the production of diffusion barriers and compressors, which are key components of gaseous diffusion enrichment technology. The counterpart confirmed that the First Group of IAEC Department 3000^{1/} had continued its work in these areas after its relocation from Tuwaitha to the Engineering Design Centre (Rashdiya) and that some significant achievements had been attained in the development of anodised aluminium barriers. It had been able to demonstrate the corrosion resistance of the barrier material to UF₆ and had achieved measurable uranium isotopic separation. However, according to the counterpart, this activity, carried out in 1989, had not progressed beyond the qualification of a single type of barrier.

In parallel to barrier studies, attempts to reverse-engineer compressors had been made, in co-operation with Iraq's Specialised Institute for Engineering Industries. However, the counterpart maintained that these attempts had not been successful. The counterpart stated that all activities related to gaseous diffusion had been stopped in 1989 and priority given to exploiting the progress made in gas centrifuge enrichment technology.

C. Nuclear weapon missile delivery vehicle

8. Iraq's nuclear weapons programme, as planned in 1988, foresaw the production of the first weapon in 1991. However, the nuclear weapon in the mid-1988 conceptual design was deemed to be far too heavy to be delivered by missile. Consequently the PC-3 Fourth Group (Weapon development) had been advised to modify the design "with a view to reducing the total weight of the projectile (payload) to about one ton or less".

From discussions with the counterpart, undertaken by the IAEA with assistance from a missile expert provided by the Special Commission, it appears that three delivery vehicle options were pursued:

- a) The longer term plan was for a delivery vehicle based on the engine that was being developed to power the second stage of the Al Abid satellite launcher. This vehicle would have had a payload chamber of 1.25 metre diameter and the capability to deliver a warhead of at least one tonne to a range of almost 1,200 km. Practical work on this engine did not start until April 1989 and according to the counterpart, this nuclear weapon delivery vehicle option would not have been complete until 1993 - two years after the first nuclear weapon was supposed to have been produced.

^{1/} IAEC Department 3000 was the forerunner of the Petrochemical Project 3 (PC-3) - the Iraqi code name for their covert nuclear programme. At the beginning of 1989 direct responsibility for this programme was moved from IAEC to the Ministry of Industry and Military Industrialisation.

b) The fall-back option was to use an essentially unmodified Al Hussein missile and to accept a range limitation of 300 km.

c) Although discounted as impracticable by the counterpart, it seems reasonable to suppose that the shorter term - crash programme - option was the attempt, stated to have been initiated in August/September 1990, to produce a derivative of the Al Hussein/Al Abbas missile designed to deliver a warhead of one tonne up to 650 km and to accommodate a nuclear package of 80 cm diameter.

9. It is difficult to evaluate these options without detailed knowledge of Iraq's nuclear weapons strategy, including how that strategy might have evolved up to 1991 and how the strategy might have changed in response to the international reaction to Iraq's invasion of Kuwait. However, it is reasonable, based on statements by the counterpart, to suppose that the first device, containing indigenously produced HEU, would not have been available before late 1992. Equally, if it is accepted that Iraq's strategy was to acquire a small nuclear arsenal before testing, it is likely that the need to demonstrate a delivery capability would not have occurred until 1994. In this context, the development of the vehicle in option a) above, which should have been completed in 1993, was compatible with the overall programme.

10. If Iraq's nuclear strategy had always included the option to divert safeguarded HEU to the production of a nuclear weapon by 1991, then the delivery vehicle in option a) above was clearly not going to be available and work on an alternative vehicle - perhaps option c) above - should have originated much earlier than August 1990. This situation is consistent with the rationale that the diversion of the HEU from safeguards and the development of an interim delivery vehicle were uniquely components of a "crash programme" devised in August/September 1990 and quite separate from the long term programme to acquire a nuclear weapons capability.

D. Full, final and complete declaration (FFCD)

11. The report on the IAEA's twenty-eighth inspection mission to Iraq recorded the need for a radical revision^{2/} to the FFCD required of Iraq in accordance with paragraph 3 of UN Security Council resolution 707 (1991). In response, a document of more than one thousand pages was delivered, by Iraq, to the IAEA office at the Baghdad Monitoring and Verification Centre (BMVC) on 1 March 1996. This document, issued in English as a draft by the Iraqi National Monitoring Directorate, is entitled "Full, Final and Complete Declaration of the Iraqi National Nuclear Programme" and consists of six volumes. The table of contents of the draft FFCD was attached to document GOV/INF/791.

^{2/} In May 1992, Iraq had submitted what it considered to be an FFCD. It was a document of 72 pages entitled "Iraqi nuclear programme before and after Security Council resolution 687 (1991)". In handing over this document, the counterpart advised the IAEA that it was not a 'stand alone' description in view of the large amount of information already conveyed to the IAEA in the course of the inspections.

12. The assessment by the IAEA of the draft FFCD was undertaken as a high priority task and an ad hoc inspection (IAEA-30), organised in two stages, was conducted from 13 to 19 May and from 17 June to 8 July 1996. The objective of IAEA-30 was to clarify ambiguities, inconsistencies or contradictions found in the draft, to secure the inclusion of additional details and to obtain documentation to verify the correctness and completeness of the declaration. In this extensive review of the draft FFCD, the IAEA was assisted by experts from Member States who are thoroughly familiar with the details of the Iraqi nuclear programme through their participation in previous inspection missions. Based on the clarifications provided in response to questions asked by the inspectors, the Iraqi counterpart undertook the preparation of a second draft of the FFCD, which, except for Volume II (EMIS related technologies) was provided to the IAEA on 21 June 1996. At the time the present report was prepared (August 1996), the review of the draft FFCD was 50% complete. If the Iraqi counterpart continues to co-operate at the present level, it should be possible to conclude the assessment of this document within a few months.

III. Ongoing monitoring and verification (OMV) activities

A. Operations

13. In the period under review (1 September 1995 through August 1996), the Baghdad-based IAEA Nuclear Monitoring Group will have conducted more than 300 monitoring inspections of which more than 30 were carried out at sites which had not been previously inspected. This will bring the total number of OMV inspections since the start of OMV implementation in August 1994, to over 600. The majority of these inspections were carried out with no prior announcement and one such inspection, carried out in co-operation with monitoring staff of the UN Special Commission, took place during the night. No indication of prohibited equipment, materials or activities was detected.

14. Since July 1995 and in the frame of their OMV activities, the IAEA and the Special Commission have started to implement a joint programme of inspection of Iraqi sites that in the judgement of IAEA/UNSCOM are deemed to have capabilities suitable for conducting work on some aspect of weapons of mass destruction, despite the lack of evidence or indication of such work. The carrying out of joint IAEA-UNSCOM multi-disciplinary inspections at "capable" sites on a regular basis will contribute to the effectiveness of the OMV plans to detect any attempt by Iraq to conduct activities proscribed by Security Council's resolutions. In the period under review five such inspections at "capable" sites, coordinated by the IAEA, have been conducted by joint IAEA-UNSCOM teams. On 7 July 1996, the fifth such multi-disciplinary inspection of a "capable" site met with some difficulties to gain immediate access to the site. The facility to be inspected was a factory building located inside an army camp. On arrival at the entrance gate, the joint IAEA/UNSCOM team was advised that the facility was an installation of the Special Guards and as such was considered to be a sensitive site, hence the UNSCOM "modalities for inspection of sensitive sites" were to be applied. The team was kept at the gate for approximately two hours waiting for the arrival from Baghdad of a high ranking Iraqi officer, before being granted access and allowed to proceed with the inspection. No indication of prohibited equipment, materials, or activities was detected.

15. The sixth and seventh periodic radiometric surveys of Iraq's main water bodies were completed in October 1995 and April 1996. Each survey involved the collection of samples of water, sediment and biota from 15 sites selected from the more than 50 locations for which baseline data had been established in the original survey completed in November 1992.

16. The Nuclear Monitoring Group, in co-operation with the counterpart, arranged for the repackaging of the inventory of natural uranium tetrachloride from the severely corroded steel drums to corrosion resistant high density plastic containers. The opportunity was taken to re-verify the quantity of this nuclear material and to place it under individual IAEA seals.

B. Technical developments

17. Geographic position loggers, developed and donated by the Government of the United States, were successfully commissioned. These devices, which measure and store geographic position against time, are now in use in the air sampling programme which uses road vehicle and helicopter-based collection systems. It is expected to use geoposition loggers with other transportable sensors.

C. Video surveillance

18. Video surveillance is used individually and jointly by the IAEA and UNSCOM to assist in the monitoring of activities at Iraqi facilities. The surveillance systems have the capabilities both to record locally and to transmit the video signals via radio telephone links, to the BMVC. These capabilities have recently been extended to allow the video signals to be transmitted to the IAEA headquarters via satellite telephone links and to be viewed in the Action Team Operations Office.

D. Procurement matters

19. The active co-operation of the Member States involved has made it possible to locate a carbon fibre filament winding machine, the procurement of which was initiated by Iraq in mid-1990 for use in the production of rotors for uranium enrichment gas centrifuges. The winding machine was shipped from Switzerland, in February 1991, through Singapore and was received in Jordan in July 1991, where it has remained until located in November 1995. Arrangements have been made with the assistance of the Government of Jordan to inspect the machine in situ. The final disposition of the machine - the location of which was notified to the Agency in February 1996 - is yet to be determined, but its discovery represents the successful conclusion to this particular investigation into Iraq's clandestine procurement activities, started in May 1994 on the basis of information obtained from open sources.

E. Exploitation of the documentation cache

20. As previously reported, the so-called "Haider House Farm documentation cache", declared to have been withheld on the express orders of the late Hussein Kamel Hassan Al Majid, was subject to immediate review before being transferred from the BMVC to IAEA Headquarters in Vienna. Since that time, additional documentation has been provided by the counterpart to the extent that our library now contains what appears to be an almost complete

series of the 1,572 technical reports issued by PC-3 and a large number of drawings of the various designs of gas centrifuge machine prototypes.

The documentation library has been further exploited to provide even fuller understanding of the activities undertaken by Iraq in the area of uranium enrichment technologies and weapon development. In the uranium enrichment area the Agency has been assisted by experts from Member States, who have carried out a thorough review of the centrifuge enrichment information in order to determine the extent of foreign assistance received by Iraq. A similar analysis of weaponisation-related documentation is in progress.

21. In August 1996, a preliminary scanning of some 50,000 aperture cards (microfiche) found in the Haider House farm cache was completed in order to identify documents which deserve further detailed analysis. At the same time work has started to categorise a first batch of some 72,000 microfilm frames handed over by the Iraqi counterpart in the course of IAEA-30 second stage (June 1996). These 72,000 frames are only approximately 15% of the documentary material in microfilm form made available by Iraq since August 1995, which amounts to 9 km of roll film.

22. The management of the documentation library and its further exploitation is an ongoing task of the Agency's Action Team.

IV. The export/import monitoring mechanism

23. Pursuant to paragraph 7 of Security Council resolution 715 (1991), a mechanism for the monitoring of sales and supplies to Iraq of items relevant to the implementation of section C of resolution 687 (1991) and other relevant resolutions, including resolution 715 and the plans approved thereunder, was developed by the Committee established under resolution 661 (1990) (the "Sanctions Committee"), the Special Commission and the IAEA. The mechanism provides for notification by Iraq of intended imports of those items identified by the IAEA and the Special Commission in the revised annexes to their respective plans for ongoing monitoring and verification (documents S/1995/215 and Corr.1 and 2 and S/1995/208 and Corr.1). It also provides for notification by supplier States of planned supplies of such items to Iraq. The notifications are to be submitted to the IAEA and the Special Commission through a joint unit, located in New York, constituted by the IAEA and the Special Commission. Thereafter, Iraq would be required to declare the arrival, and end use, of such items in Iraq. Those declarations would be subject to verification by the IAEA and the Special Commission under their plans.

24. On 27 March 1996, acting under Chapter VII of the Charter of the United Nations, the Security Council unanimously approved the export/import monitoring mechanism in resolution 1051. The resolution requires implementation of the mechanism by Iraq as from a date to be agreed upon by the IAEA, the Special Commission and Iraq, but in any event not later than sixty days from the adoption of the resolution (i.e., 27 May 1996). All other States must begin to notify the joint unit of intended exports to Iraq as from the date the Secretary-General and the Director General of the IAEA report to the Security Council, after consultations with members of the Security Council and other interested States, that they are satisfied with the preparedness of States for the effective implementation of the mechanism. The Security Council further decided that all States are to be provided, not later than 45 days

after the adoption of resolution 1051, by the Special Commission and the IAEA with information necessary to make preparatory arrangements at the national level prior to the implementation of the provisions of the mechanism.

25. As recognised by the Security Council, the export/import mechanism is an integral part of ongoing monitoring and verification by the Special Commission and the IAEA. The mechanism is not a regime for international licensing, but rather for the timely provision of information by States of sales or supplies to Iraq of items covered by the plans for ongoing monitoring and verification. As further recognised by the Council, the mechanism "will not impede Iraq's legitimate right to import or export for non-proscribed purposes, items and technology necessary for the promotion of its economic and social development".

26. Finally, under the same resolution (paragraph 16), the Security Council decided to consolidate the periodic requirements for progress reports under resolutions 699 (1991), 715 (1991) and resolution 1051 and to request the Secretary-General and the Director General of the IAEA to submit such consolidated progress reports every six months to the Council, commencing on 11 April 1996.

V. Conclusions

27. The IAEA has continued rigorously to implement its plan for the ongoing monitoring and verification of Iraq's compliance with its obligations under United Nations Security Council resolutions. It has not, since the last report to the General Conference, seen instances of activities or the presence, in Iraq, of equipment or materials, proscribed by those resolutions. The Iraqi counterpart has continued to co-operate with the IAEA in a productive way. The IAEA is conscious, however, that the expertise and know-how acquired by Iraqi scientists and engineers can provide an adequate base for re-constituting a nuclear weapons oriented programme. A continuing high level of vigilance is necessary to avert this risk.

28. Iraq has made a major effort to provide a detailed account of its past covert nuclear programme in the latest draft of the "Full, Final and Complete Declaration" called for in Security Council resolution 707 (1991). The IAEA has undertaken an in depth appraisal of this document aiming at assessing its correctness and completeness and focusing, in particular, on those areas where, in the opinion of IAEA, Iraq's achievements are understated. Barring surprises it can be expected that a satisfactory Iraqi account of their covert nuclear weapons programme will attain its final form within a few months.

29. The original Iraqi documentation concerning the past nuclear programme continues to be examined and further additions have been made in the period under review as the counterpart has realised that the correctness and completeness of their statements must rest on original project documents.

30. In discharging the tasks assigned to it by the UN Security Council, the IAEA continues to benefit from the assistance of Member States through the secondment of cost-free experts, the access to advanced technologies and the provision of information.

ANNEX

The IAEA's activities concerning Iraq under the relevant Security Council resolutions

Chronology

(1 September 1995 - 1 September 1996)

1. In the period under review - **1 September 1995 through August 1996** - the IAEA has maintained a continuous presence in Iraq of its Nuclear Monitoring Group (NMG) to implement the Ongoing Monitoring and Verification (OMV) Plan called for in UN Security Council resolution 687 (1991) and approved in UN Security Council resolution 715 (1991). The Plan's main purpose is to monitor and verify Iraq's compliance with paragraph 12 of UN Security Council resolution 687 (1991) and paragraphs 3 and 5 of UN Security Council resolution 707 (1991).

Events which occurred in August 1995 following the arrival in Jordan of General Hussein Kamel Hassan Al Majid,^{1/} although commanding a shift in priority of other activities, did not detract from the full implementation of the IAEA's OMV Plan. Resident inspectors of the NMG have continued their work in the field according to schedule, with the support of the staff of the Baghdad Monitoring and Verification Centre (BMVC) and in co-ordination with the chemical, biological and missile Groups of the Special Commission. Since 1 September 1995, more than 300 monitoring inspections - most of them unannounced - will have been conducted including more than 30 at sites not previously inspected. This will bring the total number of OMV inspections since the start of the OMV Plan implementation in August 1994 to more than 600. No indication of prohibited equipment, materials or activities has been detected.

2. The twenty-eighth inspection mission in Iraq under Security Council resolution 687 (1991) took place from **9 to 19 September 1995**. The primary objective of the inspection was to follow-up on revelations made by the Iraqi authorities on their past covert programmes in the aftermath of the departure to Amman of Gen. Hussein Kamel. The following provides highlights of the IAEA-28 mission's findings:

- For the first time, it was acknowledged by Iraq what the IAEA had always maintained i.e., that the activities carried out at first at Tuwaitha and later at Al Atheer had been aimed at the production of a nuclear device and not only to the definition of what was required to produce it, as had previously been asserted by Iraq. Key documentation on Iraq's design of a nuclear device was provided to the IAEA.
- The involvement of the Al Qa Qaa State Establishment in support of the development of the implosion package was for the first time acknowledged by Iraq and declared to have begun in 1987.

^{1/} These events were described in an addendum to the previous chronology (see document GOV/2816/Add.1-GC(39)/10/Add.1 dated 4 September 1995).

- The crash programme which was initiated in the late summer of 1990 had been planned to comprise the chemical processing of both unirradiated and irradiated research reactor fuel placed under IAEA safeguards to recover the highly enriched uranium (HEU) from the fuel; the re-enrichment of part of the HEU through the use of a 50-machine centrifuge cascade which was to have been specially constructed for the purpose; the conversion of the HEU chemical compounds to metal. Had the HEU recovery and enrichment process been successful, it could have resulted in the availability by the end of 1991 of a quantity of HEU sufficient to manufacture a single low-yield nuclear device.
- Also planned were measures such as the fabrication of the implosion package and the selection and construction of a test site and studies of a delivery system. Assembly of the device could not have been possible, according to the estimate of the Iraqi scientists, before the end of 1992. The validity of this estimate was one of the issues addressed during IAEA-28 and has to be assessed by the IAEA with the assistance of nuclear weapons experts.
- Detailed explanations were provided by Iraqi authorities of centrifuge related activities in the buildings of the Engineering Design Centre (Rashdiya), but no convincing rationale was offered for Iraq's continued concealment, even after the commencement in July 1993 of the high-level technical talks, of the role played by the Engineering Design Centre in the covert nuclear programme.
- No evidence has as of yet been found of practical progress towards the establishment of the 50-machine centrifuge enrichment cascade, although it appears that external assistance was to have been relied upon for the procurement and production of the carbon fibre cylinders and other components of the centrifuge rotors.
- Wide ranging information was obtained which provided clarification and confirmation of various aspects of the procurement network established to support the centrifuge enrichment project.
- In spite of the obvious progress in openness and transparency shown by a number of Iraqi staff participating in the technical discussions, there was still a tendency to misrepresent the expertise and competence of Iraqi scientists and engineers both in the areas of programme co-ordination and in some specific R & D activities.
- Initial indications do not appear to conflict with the IAEA's assessment of the scope and status of Iraq's clandestine programme to acquire nuclear weapon capability, as set out in the IAEA's seventh semi-annual report to the Security Council. However, it would be premature to draw any definitive conclusions pending analysis of the recently acquired documentation, samples and other information.

A report on the twenty-eighth inspection mission can be found in document GOV/INF/781.

3. At its thirty-ninth regular session, on **22 September 1995**, the IAEA's General Conference adopted resolution CG(39)/RES/5 commending the Director General and the Agency's Action Team for their strenuous efforts to implement Security Council resolutions 687, 707 and 715 and requesting them to continue their efforts; welcoming the work done by the Agency towards establishing a mechanism for monitoring future sales and supplies of

designated items to Iraq; noting that with the establishment of a continuous presence of Agency inspectors in Iraq the plan for the ongoing monitoring and verification of Iraq's compliance with its obligations under relevant Security Council resolutions became operational as of the end of August 1994; urging Iraq to co-operate fully with the Agency in achieving the complete and long-term implementation of the relevant Security Council resolutions, especially regarding the Ongoing Monitoring and Verification Plan; condemning Iraq for having, since 1991, withheld from the Agency information about its nuclear weapons programme, in violation of its obligations under Security Council resolutions 687, 707 and 715; demanding that Iraq hand over to the Agency without further delay any currently undisclosed nuclear-weapon-related equipment, material or information, as called for in Security Council resolutions 687, 707 and 715; stressing that the Agency will continue to exercise its right to investigate further any aspects of Iraq's past nuclear weapons capability, in particular as regards the new information obtained by the Agency in August 1995 and any further relevant information that Iraq may still be withholding from the Agency; and requesting the Director General to report the views of the General Conference to the Secretary General of the United Nations and to report to the Board of Governors and to the fortieth regular session of the General Conference on his efforts to implement Security Council resolution 687, 707 and 715 and; deciding to remain seized of this issue.

4. As requested in operating paragraph 8 of General Conference resolution GC(39)/RES/5, by letter dated 12 October 1995 the Acting Director General, David B. Waller reported the views of the General Conference to the Security Council of the United Nations.

5. On 13 October 1995, the Director General briefed the Security Council in an informal session and submitted his eighth semi-annual report on the implementation of the Agency's plan for ongoing monitoring and verification of Iraq's compliance with paragraph 12 of resolutions 687(1991). In highlighting the content of his report, the Director General made the following points:

- The IAEA's plan for ongoing monitoring and verification had been operating for over a year and during that period some 326 inspections at 83 facilities, installations and sites had been done, mostly without prior notice;
- Iraq had finally acknowledged what the IAEA knew all along that it was actually trying to develop a nuclear weapon and not just exploring the possibilities;
- The highly enriched uranium (HEU) contained in Agency safeguarded research reactor fuel that the inspectors found intact in May 1991, was not left as it was out of respect for legal commitments; it was slated for use in a nuclear bomb but the plan could not be implemented because of the bombing that destroyed the technical tools for processing it;
- The plan to divert the HEU for weapons purposes was a violation of Iraq's NPT and safeguards obligations;
- The withholding of the documentation on Iraq's weapons programme was a violation of Iraq's obligations under the relevant Security Council resolutions;
- Despite the masses of documents and other items that had now been released, the IAEA still believed that there must be more concealed documents and that, in any

case, Iraq still had at its disposal expertise and know-how to reconstitute the programme; vigilance would continue under the ongoing monitoring and verification system;

- The documents made available in August which were being carefully analysed, might give reason for further investigations that could help in filling remaining gaps in the IAEA's knowledge;

The Director General stressed, however, that the new revelations were unlikely to change the conclusion reported to the Security Council in 1994: namely, that the essential components of the nuclear weapons programme had been identified and eventually destroyed or rendered harmless. That conclusion was based not only on Iraqi statements and documents but also on inspections, on information received from former suppliers and on the Action Team's analysis of the consistency of the overall programme. No evidence had been discovered of any unknown relevant installations.

The Director General also briefed the Council on the measures taken by the IAEA since 1991 to strengthen the safeguards system, with the aim of detecting possible non-declared activities. The Agency needed access to more information, freer access to sites for inspections and early access to the Security Council in cases of resistance. Much had been accomplished so far e.g. reporting procedures on import/export of relevant items, introduction of environmental sampling, recognition of IAEA's role by the Security Council in its Summit Statement on non-proliferation. More recently, the IAEA had continued to strengthen the system through its "93+2" programme. The Agency's authority and its safeguards responsibilities had been reaffirmed by the NPT Conference and states were urged to communicate their relevant concerns to the Agency. For rapid communication, the Director General had established a "hot-line" link with the Secretary General and was willing to brief the Council whenever necessary, including by teleconferencing. The text of the Director General's eighth semi-annual report to the Security Council can be found in document GOV/INF/776.

6. The twenty-ninth IAEA inspection mission in Iraq under Security Council resolution 687 (1991) was carried out from **17 to 25 October 1995** to continue investigations, begun in September during the twenty-eighth inspection mission, into revelations made by the Iraqi authorities after the departure of General Hussein Kamel from Iraq. Detailed discussions with the Iraqi counterpart, focused on Iraq's centrifuge enrichment and weaponisation technologies, helped to refine the IAEA's assessment of Iraq's state of knowledge of these technologies, in particular:

- It was confirmed that although Iraq's nuclear weapons programme plan, established in 1988, had the objective to produce a small arsenal of weapons - with the first device being produced in 1991 - the three main components of the programme, namely the production of HEU from domestic sources of uranium, the design and production of a viable device and the development of a delivery system, had not progressed equally to meet the planned schedule.
- The weapon design component was, in the opinion of the Iraqi counterpart, making the best progress and with the solution of the few problems remaining in January 1991, the weaponisation group was confident that the finalisation of a viable design could have been achieved close to schedule. On the last day of its stay in Iraq, the team was provided with an optical disk on which reports from PC-3 Fourth Group

(Weaponisation), dated from 1988 to 1991, were stored. These reports, in Arabic, seem to cover the most significant areas of the weaponisation activities and will require several months to be properly assessed.

- The production of HEU by enrichment of domestic uranium, pursued through the two parallel lines of electromagnetic isotope separators (EMIS) and gas centrifuges was lagging far behind. In January 1991, EMIS was years away from completion of the plant and the centrifuge enrichment was still at the stage of single machine testing.
- Contrary to the information provided by Iraq, drawings contained in the Haider House Farm cache show that their interest in the long, super-critical centrifuge machine clearly went beyond the stage of efficiency calculations. Furthermore, although the Iraqi counterpart told IAEA-28 they had never carried out procurement activity for the supercritical machine, it was admitted to IAEA-29 that they had sought bellows production technology and that their consultant - identity known to IAEA - had provided them with three sample bellows.
- Although some originals of EDC project drawings and documents have been found in the Haider House Farm cache, IAEA inspectors are convinced that many more documents relating to the centrifuge programme have been produced than have been provided to the IAEA. Despite the Iraqi counterpart's assurances to the contrary it remains difficult to accept that these, and other, documents do not remain in storage somewhere in Iraq.
- It became clear that the design and development of the delivery system had progressed further than previously disclosed. According to the Iraqi counterpart, several meetings and detailed technical exchanges had taken place, during the second half of 1990, between the nuclear weapon and the missile groups. A modification of the Al Hussein missile was being designed with a separable warhead to deliver a payload of 1 ton over a distance of 600 kilometres and it was estimated that this development could have been completed within six months.
- Iraq has developed or otherwise acquired many of the technologies required to produce deliverable nuclear weapons but the attempt made by Iraq to assemble a nuclear device by diverting HEU from their safeguarded research reactor fuel is a clear indication that their uranium enrichment programme was still far from production in January 1991.
- The Gulf War destroyed Iraq's EMIS facilities and halted their efforts to master centrifuge technology. Although the IAEA has removed from Iraq all existing research reactor fuel and hence any in-country source of quickly available weapons-usable nuclear material, vigilance is necessary to prevent the direct acquisition of nuclear weapons-usable material by Iraq in view of the low signature associated with weaponisation activities.

The report of the 29th inspection can be found in document GOV/INF/783.

7. The sixth periodic radiometric survey of Iraq's main water bodies was completed on **22 October 1995**. The survey involved the collection of samples of water, sediment and biota from 15 sites selected from the more than 50 locations for which baseline data had been established in the original survey completed in November 1992.

8. On **1 November 1995**, the Director General addressed the fiftieth session of the United Nations General Assembly. In presenting the IAEA's annual report, he summarised the results of the IAEA's activities in Iraq as follows:

"As I reported to the General Assembly last year, it is our conclusion that the essential components of Iraq's clandestine nuclear weapon programme have been identified and destroyed, removed or rendered harmless. This assessment was not based on faith in Iraqi statements, but on data gathered during inspections, on information provided by the suppliers and Member States and, to a great extent, on analysis of the large number of original documents which were obtained in Iraq early in the inspection process. Since August 1994, IAEA inspectors have been continuously present in Iraq to perform on-going monitoring and verification of Iraq's compliance with the relevant Security Council resolutions. This does not exclude the further conduct of inspections for the purpose of investigation, should such an investigation be called for, for example, to verify new information.

Recently the IAEA received additional information on Iraq's former nuclear weapons programme by way of new declarations, voluminous documents and other materials, which were transmitted to the IAEA and UNSCOM by Iraq following the departure of the former Iraqi Minister of Industry and Military Industrialisation. What we have been told is that in 1990, Iraqi authorities instituted a crash project to take safeguarded highly enriched research reactor fuel and transform the fissile material for use in a nuclear weapon. It is uncertain whether Iraq would have been able to overcome the considerable technical difficulties involved in this project. As it was, the project was made impossible by damage inflicted on the nuclear research centre at Tuwaitha by the January 1991 bombing and the safeguarded nuclear fuel was fully accounted for in the IAEA post-war inspection. The new Iraqi declarations, along with all of the documents and materials to which I have referred, are currently being carefully examined for any new data. What can be concluded at this stage is that Iraq's withholding of information, documents and materials clearly constitutes a breach of Iraqi obligations under the Security Council resolutions and that the crash programme was in violation of the safeguards agreement and the NPT."

9. On **20 November 1995**, Gen. Amer Rashid Al Ubaydi, Iraqi Minister of Oil and Chief technical counterpart in all rounds of "high level technical talks", visited the Director General and met with the IAEA's Action Team to discuss progress made in the post-August 1995 inspections and current issues related to the IAEA's activities in Iraq. Gen. Amer stated that he and Deputy Prime Minister, Tariq Aziz, had several meetings with the former principals of the nuclear programme after the August events urging them to tell the IAEA all that they knew "even if they believed the information was not relevant to resolution 687". In acknowledging the reticence shown by some Iraqi officials, described in the reports of the twenty-eighth and twenty-ninth inspection missions, Gen. Amer stated that although Hussein Kamel's orders to conceal the truth had been revoked and he was now out of the country, his legacy still lingered and not everyone had yet realised that now, the whole truth was being demanded by the Iraqi government, because it was in the best interest of the country.

10. By letter dated **14 December 1995**, the Director General provided information to the United Nations Secretary General on the progress made by the IAEA in implementing the Agency's plan for the destruction, removal or rendering harmless of the items specified in paragraph 12 of the resolution 687 (1991). The text of this letter can be found in document GOV/INF/782.

11. On **1 March 1996**, the Iraqi National Monitoring Directorate handed over to the IAEA's Nuclear Monitoring Group in Baghdad the draft of the "Full, Final and Complete Declaration (FFCD) of the Iraqi National Nuclear Programme." The IAEA undertook the assessment of this document as a high priority task.

12. On **19 March 1996**, the Agency's Board of Governors considered, under item 5 of the Agenda, the report of the Director General on the implementation of the United Nations Security Council resolution 687, 707 and 715 relating to Iraq (document GOV/2846). The Board took note of the report and requested the Secretariat that the report, updated as appropriate, together with the customary chronology on the Agency's activities in 1995 -1996 as an attachment, be submitted to the forthcoming regular session of the General Conference in response to the request contained in resolution GC(39)/RES/5.

13. On **27 March 1996**, the United Nations Security Council adopted resolution 1051 concerning the Iraqi export/import monitoring mechanism. Pursuant to paragraph 7 of Security Council resolution 715 (1991), a mechanism for the monitoring of sales and supplies to Iraq of items relevant to the implementation of section C of resolution 687 (1991) and other relevant resolutions, including resolution 715 and the plans approved thereunder, was developed by the Committee established under resolution 661 (1990) (the Sanctions Committee), the Special Commission and the IAEA. The mechanism provides for notification by Iraq of intended imports of those items identified by the IAEA and the Special Commission in the revised annexes to their respective plans for ongoing monitoring and verification (documents S/1995/215 and Corr. 1 and 2 and S/1995/208 and Corr.1). It also provides for notification by supplier States of planned supplies of such items to Iraq. The notifications are to be submitted to the IAEA and the Special Commission through a joint unit, located in New York, constituted by the IAEA and the Special Commission. Thereafter, Iraq would be required to declare the arrival, and end use, of such items in Iraq. Those declarations would be subject to verification by the IAEA and the Special Commission under their plans.

The resolution adopted by the Council, acting under Chapter VII of the United Nations Charter, requires implementation of the mechanism by Iraq as from a date to be agreed upon by the IAEA, the Special Commission and Iraq, but in any event not later than sixty days from the adoption of the resolution (i.e., 27 May 1996). All other States must begin to notify the joint unit of intended exports to Iraq as from the date the Secretary General and the Director General of the IAEA report to the Security Council, after consultations with members of the Security Council and other interested States, that they are satisfied with the preparedness of States for the effective implementation of the mechanism. The Security Council further decided that all States are to be provided, not later than 45 days after the adoption of resolution 1051, by the Special Commission and the IAEA with information necessary to make preparatory arrangements at the national level prior to the implementation of the provisions of the mechanism.

As recognised by the Security Council, the export/import mechanism is an integral part of ongoing monitoring and verification by the Special Commission and the IAEA. The mechanism is not a regime for international licensing, but rather for the timely provision of information by States of sales or supplies to Iraq of items covered by the plans for ongoing monitoring and verification. As further recognised by the Council, the mechanism "will not impede Iraq's legitimate right to import or export for non-proscribed purposes, items and technology necessary for the promotion of its economic and social development".

Finally, the Security Council decided to consolidate the periodic requirements for progress reports under resolutions 699 (1991), 715 (1991) and resolution 1051 and to request the Secretary General and the Director General of the IAEA to submit such consolidated progress reports every six months to the Council, commencing on 11 April 1996.

14. On **11 April 1996**, the Director General submitted to the Secretary General of the United Nations the first consolidated six-monthly report on IAEA activities relating to Iraq called for in the Security Council resolution 1051 (1996). The report, which covers the period October 1995 - April 1996 described results achieved in the course of IAEA-28 and IAEA-29 inspection missions and clarifications provided by the Iraqi authorities on the indigenous reactor project (Project 182), on uranium enrichment by solvent extraction, ion exchange and gaseous diffusion methods and on the options pursued by Iraq for a missile delivery vehicle for their nuclear device. Other chapters of the report covered the implementation of the OMV Plan, progress made in procurement matters, the reception of the draft FFCD and the work undertaken by the IAEA to exploit the large number of original Iraqi documents handed over since August 1995. The text of the report can be found in document GOV/INF/791.

15. The seventh periodic radiometric survey of Iraq's main water bodies was conducted from **20 to 27 April 1996**. As usual, samples of water, sediment and biota were collected at 15 sites selected from the more than 50 locations for which baseline data had been established in the original survey completed in November 1992.

16. By **May 1996**, a first detailed analysis of the content of the Iraqi draft FFCD submitted had been completed by the Agency with the assistance of experts from IAEA Member States. The document was found to provide an acceptable basis to start a detailed discussion with the Iraqi counterpart in order to arrive at a satisfactory final version of the FFCD. An "ad hoc" mission (IAEA-30) was organised to clarify apparent inconsistencies and contradictions in the draft FFCD and to request additional information which in the IAEA's judgement were needed in certain areas of the programme.

17. The first stage of IAEA-30 was conducted from **13 to 19 May 1996** and the second took place from **17 June to 8 July 1996**. Based on the results achieved in a series of meetings with the counterpart, Iraq undertook to prepare a second draft of the FFCD which apart from volume II (EMIS related technology) was provided to the IAEA on 21 June 1996. At the time the present report was prepared (August 1996) the review of the draft FFCD was 50% complete.

18. On **7 June 1996**, General Amer Rashid Al Ubaydi met the Director General at the IAEA headquarters in Vienna to discuss current issues which were of concern to the Iraqi government. He referred in particular to the time consuming process undertaken by the IAEA to verify the correctness and completeness of the FFCD which involved analyses of "less significant details". Gen. Amer touched on the monitoring of the present assignments of former key staff involved in the nuclear covert programme. He also added that the IAEA's opinion that Iraq still retained a complete record of the nuclear programme was "totally wrong". In addressing those comments, the Director General noted that the IAEA Secretariat was well focused on matters of significance and was using its best efforts to reach a conclusion as soon as feasible. It should be understood however, that the events of August 1995 and the revelation of the "crash programme" had shaken confidence in Iraq's statements and co-operation. Technical expertise still existed in Iraq even if the facilities and equipment had been neutralised and this made ongoing monitoring inevitable. As part of the monitoring process, the Director General stated that it was important to the IAEA to verify current activities of people previously involved in the nuclear programme.

19. From **24 to 29 June 1996**, the leader of the IAEA Action Team was in Baghdad and had separate meetings with the Iraqi Deputy Prime Minister, Tariq Aziz, the Iraqi Minister of Oil, Gen. Amer Rashid Al Ubaydi and Dr. Jafar Dhia Jafar, the minister formerly responsible for PC-3. Progress made since the last round of high level technical talks (August 1995) was reviewed. Problems linked to the verification of the correctness and completeness of the FFCD and to the monitoring of personnel current assignments were discussed and assurance was given of the Iraqi Government's intention to facilitate the task of the Action Team in every possible way.

