TECHNICAL COOPERATION REPORT FOR 2003

REPORT BY THE DIRECTOR GENERAL

GC(48)/INF/6

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PREFACE

The Board of Governors has requested the transmission to the General Conference of the attached Technical Cooperation Report for 2003, the draft of which was considered by the Board at its June 2004 session.

The Director General is also hereby reporting in fulfilment of the request contained in resolution GC(47)/RES/9 on "Strengthening of the Agency's technical cooperation activities."

Contents

Summary

The Technical Cooperation Report for 2003 highlights activities, achievements, and challenges of the technical cooperation programme for the past year. In addition to implementing the technical cooperation programme for 2003–2004, the Secretariat devoted much effort and time to many initiatives to improve the programme, including evaluations, audits, and process reviews. These initiatives aimed at increasing both the efficiency and the effectiveness of the programme, not only for field implementation, but also for internal implementation issues, such as electronic workflow solutions and mapping out internal processes to identify human resource needs. Work to improve communication with Member States brought a greater level of detail to project information available on TC-PRIDE, the website that provides information on technical cooperation projects. More extensive upstream work with Member States by the regional Sections aimed at achieving better project proposals for the 2005–2006 technical cooperation programme. The project appraisal process was also reviewed and a new process has been put in place to formulate the proposed 2005–2006 technical cooperation programme.

The Agency's continued efforts to increase the impact of the technical cooperation programme through the experience and financial support of other UN and non-governmental organizations garnered new partners such as the Joint United Nations Programme on HIV/AIDS (UNAIDS) and the African AIDS Vaccine Programme. The commitment and support from Member States was clearly marked by the dramatic increase in extrabudgetary resources for the programme. The all-time high of $11.8 million in extrabudgetary resources reflects the commitment of the Member States to effect change for the improvement of socio-economic conditions through the use of nuclear technology for peaceful purposes.

Achievements were made through technical cooperation covering several thematic areas, involving the use of human resources from all parts of the Secretariat. Nuclear medicine projects increased the availability of cancer diagnosis and treatment and improved the radiation protection of patients and technicians. Local consumption and export of crops from developing countries have been increased with support from the Agency through the use of the sterile insect technique as well as improved varieties of fruits and legumes resistant to disease and drought. Achievements in identifying water resources and mapping aquifer flows were also made using isotope hydrology methods. In the Europe region, the Agency contributed to returning high enriched uranium fuel to the country of origin and converting research reactor fuel to low-enriched uranium. In addition, upgrading radiation protection infrastructures in all regions has had continued success.

The year had many accomplishments, as well as challenges. Early in 2003, the severe acute respiratory syndrome (SARS) erupted in the East Asia and the Pacific region, halting workshops and training sessions for a period of time. Security-related issues also hampered programme implementation in several regions. In addition, the unpredictability of payments to the Technical Cooperation Fund put into question the implementation of the full programme planned for 2003–2004. As a result of a shortfall in resources to the Technical Cooperation Fund at the end of 2003, the 2004 technical cooperation programme had to be reduced and the Board was asked to authorize an increase in overprogramming to 20% through June 2004.Thanks to significant efforts by a number of Member States during the first quarter of 2004, additional payments to the Technical Cooperation Fund for 2003 were made, resulting in a rate of attainment of 86.8% as of 31 March 2004. In addition, Member States made efforts to pay their target shares for 2004 earlier than has been the practice in the past. This permitted the Secretariat to restore many of the activities that had been postponed or cancelled while reducing the overprogramming level to below 15%.

The Agency's Technical Cooperation Programme at a Glance
(as of 31 December 2003)

The target for voluntary contributions to the Technical Cooperation Fund for 2003 was **$74.750 million**.

New resources for the programme were **$75.4 million**.

- Technical Cooperation Fund: $62.6 million
- Extrabudgetary resources: $11.8 million
- In-kind contributions: $1.0 million

The adjusted budget for the technical cooperation programme for 2003 was **$104.9 million**.

Disbursements for the programme reached **$73.2 million**.

Net new obligations during the year were **$76.1 million**.

The implementation rate for the programme was **72.5%**.

The number of countries/territories receiving support from the programme was **110**.

Support for projects involved **3121** expert and lecturer assignments, **2848** meeting and workshop participants, **2107** participants in training courses and **1411** fellows and visiting scientists.

The major areas of activity were **human health (21%)**, **safety (21%)**, **food and agriculture (16%)**, **applications of physical and chemical sciences (10%)**, **water resources and environmental protection (9%)**, **capacity building (6%)**, **nuclear fuel cycle (5%) and nuclear power (5%)**.

Technical Cooperation Report for 2003

Report by the Director General

A. Strengthening Technical Cooperation

1. This document satisfies the General Conference request to the Director General to report on the implementation of resolution GC(47)/RES/9. The following section reviews highlights from 2003 covering programme improvements based on evaluation or audit recommendations, as well as challenges facing the technical cooperation programme.

A.1. New Extrabudgetary Resources Reach All-time High

2. The Secretariat continues to work with Member States to facilitate government cost-sharing as well as other means of promoting partnership in development. New extrabudgetary resources for the Agency's technical cooperation programme 2003 reached an all time high of $11.8 million. Besides an increase in donor-country extrabudgetary contributions, government cost-sharing surpassed expectations, reaching $4.3 million. The following paragraphs describe how Member States supported projects in their own countries.

3. In the Africa region, government cost-sharing totalled more than $1.5 million. The Government of Nigeria transferred $400 000 as an extrabudgetary contribution to share the cost associated with the installation and commissioning of a tandem accelerator at the Centre for Energy Research and Development. In addition, the Government allocated more than $200 000 to cover the local costs. Agency assistance is being provided under Programme Reserve project NIR/4/005, 'Establishment of a Compact Tandem Accelerator Facility'.

4. As a demonstration of its commitment to establish the first radiotherapy facility in Luanda, the Government of Angola has made an extrabudgetary contribution of $400 000 to project ANG/6/002, 'Establishment of a Radiotherapy Centre'. In the first phase of the project, the Agency's primary involvement in the facility will be through the provision of training and expert advice.

5. Support was provided in previous years by the Agency to the Ocean Road Cancer Institute (ORCI), United Republic of Tanzania, which is the only cancer therapy facility in the country. The cooperation focused on improving the accuracy of radiotherapy planning and treatment. Recognizing the crucial role of ORCI in the fight against cancer, the Tanzanian Government has made $1 million available for the further development of the facility. The Government has contributed a sizeable portion of these funds ($600 000) as extrabudgetary resources to share the costs under project URT/6/020, 'Improvement of Radiotherapy Services, Phase II'. ORCI is expected to play an increased role in the management as well as the treatment, both palliative and curative, of cancer in the United Republic of Tanzania.

6. In the East Asia and the Pacific region, the Government of Malaysia has invested $2 million in the expansion of the nuclear medicine department at Penang Hospital, including a dual head single photon emission computed tomography (SPECT) camera. Under project MAL/6/018, 'Expansion of

Nuclear Medicine Services in Penang Hospital', the Agency has provided training on various aspects, including in vivo imaging, clinical investigations, radiopharmaceuticals, and radiation protection. The nuclear medicine services in Penang Hospital can now benefit a larger number of patients in the north-west region of Malaysia. Following these developments, the Ministry of Health of Malaysia has decided to install a positron emission tomography (PET) camera at the hospital.

7. In the Europe region, there has been an increase in funding provided to the project budgets by both the recipient and donor governments, with a total of $6.1 million provided from extrabudgetary resources. One major factor assuring the ownership of the technical cooperation programme in Europe by the recipient Member States has been significant government cost-sharing of the projects. A total of $800 000 was provided for projects in Albania, Bulgaria, Croatia, Estonia, Latvia, Poland, Slovakia and Slovenia by the respective Member States. In August 2003, the Agency completed negotiations with the United States Department of Energy, which paid $4.4 million to the extrabudgetary portion of two technical cooperation projects in Romania (conversion of research reactor to low-enriched uranium from highly enriched uranium) and the regional programme dealing with the removal of highly enriched uranium (HEU) stored at shutdown research reactors in Sofia, Bulgaria, and Bucharest, Romania. An additional $600 000 was provided by the Nuclear Threat Initiative for ongoing assistance to Serbia and Montenegro.

8. Substantial government cost-sharing funds were received in 2003 from many Member States in Latin America. El Salvador contributed more than $180 000 to modernize the national cancer treatment facility. The facility will be primarily used to treat cancer of the cervix. Nicaragua provided $26 000 to enhance the application of nuclear medicine in the management of thyroid cancer, liver cancer, joint diseases, and coronary artery disease. Bolivia has made a cost-sharing contribution of $150 000 to the oncology institute in Santa Cruz. Guatemala contributed $136 000 in order to establish a quality assurance system at the national cancer institute. The Colombian Government made a cost-sharing contribution of $70 000 to introduce conformal radiotherapy at its national cancer institute.

9. The government of the Islamic Republic of Iran contributed to government cost-sharing with more than $1 million. The resources were used to provide expert advice and training in the fields of safety analysis, quality assurance and quality management, configuration management, emergency planning and preparedness, and personnel training.

10. In Jordan, a sterile insect technique (SIT) based project received just under $300 000 from the Government. Favourable conditions have been established in the Araba Valley in Jordan for the development of high-value green-housed agriculture for exports of medfly-free commodities, and in the Jordan Valley, centralized medfly control has been initiated.

A.2. Enhancing Technical Cooperation among Developing Countries

11. The Agency's technical cooperation programme uses many types of resources to promote the peaceful uses of nuclear technology. After years of technology transfer, the programme is now exploiting a source of knowledge and expertise: developing countries, particularly those with self-reliant nuclear institutions. A prime example of how a region can use this resource is the Latin American region.

12. Within the region covered by the Co-operation Agreement for the Promotion of Nuclear Science and Technology in Latin America and the Caribbean (ARCAL), technical cooperation among developing countries (TCDC) continues to be a key area of emphasis because it strengthens the sustainability of project activities by building self-reliance and mutual interest among Member States. Forty-three ARCAL projects were operational during 2003. As agreed by Member States within ARCAL, all project activities were implemented with the full support of national institutions, making their infrastructure and experts available at no cost to the projects.

13. TCDC has been enhanced in the past year through the recognition of both infrastructure and expertise in the region. Analytical services for isotope and chemical analyses were provided by the national laboratories of Chile, Colombia, Costa Rica, El Salvador, Peru and Uruguay to meet the requirements of regional projects such as RLA/8/031, 'Sustainable Management of Groundwater Resources', and RLA/8/032, 'Application of Isotope Geochemistry in Geothermal Development and Environmental Management'. National experts from Chile, Colombia, Costa Rica and Ecuador provided technical support to counterparts of regional projects for data interpretation and field investigations. A number of workshops to develop project management capabilities were held under the regional project RLA/0/021, 'Human Resource Development and Nuclear Technology Support', which facilitated the exchange of experience in the participating countries.

A.3. Improving the Effectiveness and Efficiency of the Programme

14. Initiatives to improve the technical cooperation programme's effectiveness and efficiency were undertaken based on recommendations from internal process reviews and assessments, findings from the Standing Advisory Group on Technical Assistance and Cooperation, and evaluations and audits from the Office of Internal Oversight Services (OIOS). In 2003, several of these initiatives came to fruition and action plans based on recommendations were completed. The Department of Technical Cooperation participated in the following audits or evaluations during 2003:

- Audit of TC Outsourcing Programme
- Audit Review of Management of Agency Procurement Functions
- Audit of: Sterile Insect Technique (Tsetse Fly)
- Audit Review of the Technical Cooperation Procurement of Equipment
- Management Services Review of Processes and Assessment of Workload of the Department of Technical Cooperation
- Evaluation of Strengthening Regulatory Authorities
- Evaluation of Technical Cooperation on Water Resources
- Evaluation of Radiotherapy Projects in Latin America
- Evaluation of the Tsetse Fly Eradication Activities
- Technical Cooperation Project Management (External Auditor)

15. As a way to improve programme planning and thus increase the impact of the technical cooperation programme, the Project Request Form for technical cooperation activities was reviewed during 2003 to simplify it and obtain more information from Member States regarding government commitment, institutional frameworks, impact sustainability, and links to national development programmes. This initiative was a follow-up to recommendations from the evaluation of the technical cooperation planning process completed in 2002. The new Project Request Form was designed in accordance with current results-based management terminology and makes the logical framework matrix a standard requirement for all project proposals. Along with the Project Request Form, the appraisal process for project requests was reviewed and the forms used during this process reformulated, including a new regional project appraisal form. The Secretariat is currently using the new forms for the appraisal of proposed projects for the 2005–2006 technical cooperation programme. The goal of the appraisal using the new forms is to identify to what degree the project meets the central criterion, to strengthen the link between projects and Country Programme Frameworks (CPFs),

and to better align projects with the results-based approach and with the objectives of the TC Strategy (GOV/INF/2002/8/Mod.1).

16. The completed Review of Processes and Assessment of Workload of the Department of Technical Cooperation conducted by OIOS, an activity which proved valuable in assessing the numerous processes required to plan, implement and report on the programme, proposes that further gains in effectiveness and efficiency can be realized through the introduction of enhanced management practices, standardization of processes and restructuring the TC organization. Technical cooperation staff identified many of the process changes during process review working group meetings. These changes are being pursued and will help make optimal use of available resources to enable staff to cope better with the workload of a growing TC programme. The OIOS Review concluded that even with efficiency gains, all existing staff are required. Furthermore, in order to carry out the new and enhanced functions, additional human resources may be needed in order to satisfactorily fulfill the objectives set out in the TC Strategy. The lack of these resources could constrain the capability of the programme to do so.

17. During 2003, significant time was devoted to two audits of procurement and the extensive discussions regarding the follow-up to a recommendation by the External Auditor to consolidate the procurement functions for the technical cooperation programme with the Procurement and Supply Section, Division of General Services. A working group studied the different procurement processes of the two sections. The decision of the Director General to consolidate the two sections will take effect in November 2004.

18. An internal review of the fellowship implementation process was carried out and a new interactive Intranet system was developed to support fellowship evaluations and placements. The system helps to find hosting institutions and introduces a fully electronic workflow and approval process in the Department of Technical Cooperation and technical divisions. The development of similar systems has been started for expert missions and meetings and to update project budgets.

A.4. Seeking Resources to Implement Footnote-a/ Projects

19. The footnote-a/ mechanism was originally intended to facilitate the efficient use of resources. In 1964, the first eight footnote-a/ projects were approved (GOV/952/Add.1) pending the availability of additional contributions or resources made available from savings resulting from fully implemented activities. These eight projects totalled $115 800, or just over 14% of expected resources, which in fact reflected overprogramming to ensure full utilization of resources. The current value of footnote-a/ projects is $72.6 million, or 51% of expected resources for the 2003–2004 technical cooperation programme. This includes 55 full footnote-a/ projects and 270 mixed projects with Technical Cooperation Fund (TCF) core funding and footnote-a/ components. In contrast to the original intent of the footnote-a/ mechanism, the current number and scope of footnote-a/ projects are well beyond the requirements for overprogramming. Furthermore, these projects frequently do not contain essential information for effective resource mobilization in terms of targeting, pursuing and realizing resource mobilization opportunities.

20. The *Technical Cooperation Strategy: the 2002 Review* (document GOV/INF/2002/8/Mod.1) established new programme objectives including outcomes and performance indicators for funding the technical cooperation programme. In particular, the indicator calling for a 25% increase in extrabudgetary funding by 2007 requires a new management approach. The core elements of this approach were included in the *Guidelines for Finalization of the 2005–2006 Technical Cooperation Programme*. The basic principle is that projects proposed to be funded fully or partially from sources other than the TCF should only be included if there is a reasonable likelihood that funding can be found. Therefore, projects that contain footnote-a/ components will include a statement on the

expected source of funding. The information included in the *Project Descriptions for the Agency's Proposed 2005–2006 Technical Cooperation Programme* will specify the following as possible sources of funding: government cost-sharing, the Nuclear Security Fund, a specific donor, TCF funding subject to improved due account status or targeted fundraising.

21. The identification of targeted fundraising opportunities at the project formulation stage will greatly improve resource mobilization efforts by focusing activities on donors with possible interest in footnote-a/ projects, or where the project objective suggests that further analysis can identify a donor. Additional human resources will be dedicated to this process in 2004, working with the relevant sections to develop resource mobilization strategies for country programmes. In this way, the combined and coordinated efforts of Member States and the Secretariat can be focused on real opportunities with greater likelihood for successful fund raising. It should be noted that this effort responds to the agreement reached at the time of approving the 2004–2005 Regular Programme and Budget that states "A more proactive role of the Secretariat is needed to seek resources to implement footnote-a/ projects approved in the 2003–2004 technical cooperation programme."

A.5. Partnering for Greater Impact

22. The Agency continued to pursue partnerships with other United Nations and non-governmental organizations during 2003. A good example of creating synergy among regional and international development organizations can be seen in the Africa region.

23. The Agency, in partnership with the African Union (AU), supports the Pan African Tsetse and Trypanosomosis Eradication Campaign (PATTEC). The Agency took part in PATTEC Policy and Mobilisation Committee meetings along with the Food and Agriculture Organization (FAO) of the United Nations and the World Health Organization (WHO).

24. In order to encourage close sub-regional and transboundary cooperation between Member States to create tsetse-free zones, the Agency, in coordination with PATTEC, facilitated consultations between Ethiopia and Sudan that culminated in the signing of a Memorandum of Agreement between the two countries in May 2003. Furthermore, the PATTEC Coordination Office promoted, in coordination with the Agency, consultations among countries in the Kwando/Zambezi region (Angola, Botswana, Namibia, Zambia and Zimbabwe), which resulted in an agreement among the countries in June 2003 to initiate a joint campaign, building on the progress made in tsetse control by Botswana in the Okavango Delta. A meeting was held under the auspices of the PATTEC Coordination Office involving the Secretariat of the New Partnership for Africa's Development (NEPAD) and the Agency during the African Union Heads of State and Government Summit held in July 2003 in Maputo, Mozambique, to discuss ways of incorporating PATTEC activities into the NEPAD agenda. The Agency also contributed to the organization of the third WHO/IAEA training course on African trypanosomosis in May 2003 in Lisbon, Portugal.

25. In November 2003, an Agency team visited the African regional office of WHO in Brazzaville, Congo, to further the cooperation in human communicable diseases (detection of drug resistance in malaria and tuberculosis), the assessment of nutrition intervention programmes using isotopic techniques, the use of nuclear molecular techniques in epidemiology drug-resistance surveillance and the assessment of vaccine programmes for HIV/AIDS. The team's visit also coincided with the first project coordination meeting for project RAF/6/029, which supports the use of nuclear molecular techniques in the context of the African AIDS Vaccine Programme.

26. Consultations were held in December 2003 with the Inter-African Bureau for Animal Resources (IBAR) of the African Union to discuss prospects for future cooperation with the Agency in the field of animal health. Discussions focused on how the Agency could be of further assistance to IBAR in its goal to eradicate the major livestock diseases from Africa and hence help Africa benefit from the trade

of livestock products both within and outside the continent. The potential areas for future cooperation, as presented by IBAR include the development of an African centre for vaccine control and quality assurance in veterinary laboratories. It was agreed that a programme development document would be prepared and submitted by IBAR to both the Agency and other international partners at a donor meeting in September 2004.

27. The Agency participated in the Partners' Conference on the Action Plan of the Environment Initiative of NEPAD held in Algiers, Algeria, in December 2003. The key priorities and projects in the Action Plan relevant to the Agency were identified in the areas on combating land degradation, drought and desertification, transboundary aquifer management, sustainable use of freshwater resources, groundwater vulnerability and augmentation of urban water resources, and coastal zone management.

28. In June 2003, the United Nations Development Programme/Global Environment Facility (UNDP/GEF) agreed to work with the Agency to promote and support the development of a framework for the sustainable management and use of the Nubian Aquifer system among the countries that share the aquifer (Chad, Egypt, Libyan Arab Jamahiriya and Sudan). UNDP has provided $25 000 to the Agency to help coordinate activities under a new regional project RAF/8/039, 'Towards a Sustainable Development of the Nubian Aquifer', which will use isotope techniques to expand the scientific knowledge and information in the database regarding the aquifer system, as well as assist the counterparts to develop a groundwater management plan based on a monitoring network for the aquifer. Full integration of the Nubian Aquifer activities in the natural resource programmes at a national and regional level will also be promoted. Links and networks between international and national organizations will be made to ensure future cooperation among the counterparts.

A.6. Contributing to the Attainment of the Millennium Development Goals

29. Many Member States are implementing technical cooperation projects that directly link to the Millennium Development Goals (MDGs), while the Agency is gaining recognition as a partner in the development community that supports Member States address basic human needs through capacity building, knowledge transfer and technical cooperation for development. In order to strengthen international cooperation focused on the poorest countries, the Agency is increasing its collaboration on specific goals where nuclear science and technology can play a significant role. These include Millennium Development Goal 1, to eradicate extreme poverty and hunger, along with Goals 5–8, relating to reducing child mortality; improving maternal health; combating HIV/AIDS, malaria and other diseases; ensuring environmental sustainability; and developing a global partnership for development. These five MDGs are having a clear influence on project planning and selection for TCF financing.

A.7. Communication and Outreach

30. Communication between the Agency and Member States regarding the technical cooperation programme has been improved with the introduction of the 'TC Country Profiles', accessible through TC-PRIDE (Technical Cooperation Project Information Dissemination Environment). This web site offers country-level information, including contacts, historical, financial and statistical information on the country's technical cooperation programme as well as the status of individual fellowships.

31. Also accessible through the TC website (www-tc.iaea.org) is the Europe region link, launched in May 2003. The website provides Member States and other users with information on the activities, functions and staff of the Europe Section. Included on the site is a multimedia gallery, which contains photos and video footage related to the region's programme.

32. Thematic plans, which reflect the Agency's programmatic strategy in a given thematic field, are available through a new website. This website provides information on Agency policy frameworks on how nuclear applications can be used to address specific development problems, e.g., the use of SIT for eradication of insect pests, cancer management through the use of radiology, etc.

A.8. Addressing the Challenges of Funding the Programme

33. The resources to fund the technical cooperation programme have presented a significant challenge during the past year. The TCF is the primary source for TC funding. The adoption by consensus of the annual resolution by the General Conference which determines a target for voluntary contributions and invites Member States to pay their respective shares, establishes a strong expectation that all Member States will respond to the request in good faith. Member States pay their shares as part of a collective effort in the expectation that others will do the same. Member States have the political responsibility to undertake all best efforts to meet such an expectation.

34. The voluntary nature of the TCF contributions has always given a degree of uncertainty to technical cooperation funds. This means that the technical cooperation programme must be planned based on expected resources rather than firm amounts. Expected resources are based on communications received by the Secretariat from individual Member States and, when no communication has been made, on recent contribution patterns. As reported in Part C of this report, the actual resources as of 31 December 2003 were significantly below the expected resources. In March 2004, the Board approved an exceptional overprogramming rate of 20% through June 2004, with the expectation that the level of TCF resources available for 2004 would be more apparent at that time. Nevertheless, the Secretariat had to scale back the technical cooperation programme to remain within this 20% limit of overprogramming.

35. Part of the package agreed to by Member States in July 2003 included the provision that the charging of assessed programme costs (APCs) would be suspended in 2004, pending a review to be presented to the June 2004, Board of Governors meeting.[1] The Secretariat, with the support of a consultant, worked with Member States to identify various options on this issue. The Chairman of the Board of Governors convened an open-ended working group of Member States, chaired by the Governor for India, which has been considering these options in depth for Board consideration in June.[2]

36. The rate of attainment for the 2003 target reached 86.8% as of 31 March 2004. However, the level of pledges and payments that can be expected against the 2004 target is still uncertain. The Secretariat will continue to explore with all Member States ways and means of reaching the goal of sufficient, assured, and predictable funding to meet the expressed needs of all Member States.

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[1] In accordance with the Package Proposal approved by the Board in July 2003 (paragraph 16 of GOV/2003/48, GOV/OR.1074 paragraphs 28 and 29).

[2] With effect from the 2005–2006 technical cooperation programme, Assessed Programme Costs (APCs) will be replaced with National Participation Costs (NPCs) – the proposal contained in GOV/2004/46 approved by the Board in June 2004.

B. Technical Cooperation Major Achievements

37. This section of the report highlights the achievements of the technical cooperation programme during 2003. As was the case in past years, Part B is divided by geographic region.

B.1. Africa

38. In the Africa region, continuing the trend of previous years, a high level of programme delivery was recorded and project disbursements amounted to approximately $19 million with a financial implementation rate of 74%. The adjusted programme in terms of extrabudgetary contributions amounted to over $2.7 million in 2003, reflecting a clear trend of increased donor support and government cost-sharing.

39. Human resource development continued as the main vehicle for Agency technology transfer in Africa under both national and regional projects. Training activities were mainly directed towards meeting specific needs expressed by Member States in priority areas related to ongoing programmes.

40. As part of the planning effort for the 2005–2006 technical cooperation programme, various activities were undertaken, including missions by Country Officers, Technical Officers and experts. For example, in Namibia pre-project missions helped national counterparts develop project proposals for crop and soil management issues and provided technical advice on the establishment of a nuclear medicine facility in northern Namibia. Support was also provided to Benin, Gabon and Zimbabwe to formulate project proposals on the use of isotopes to address water management problems in the coastal aquifer system, to control sickle-cell disease, and to combat desertification in the dry lands, respectively.

41. In 2003, CPF documents for Cameroon, Libyan Arab Jamahiriya, Madagascar and Uganda were signed during the year and significant progress was achieved in the CPF consultations with several other Member States, including Algeria, Democratic Republic of the Congo, Egypt, Ghana, Mali, Niger and Zambia. Multidisciplinary missions as part of CPF development were carried out in Algeria, Gabon, Niger and Zambia.

42. Under African Regional Co-operative Agreement for Research Development and Training Related to Nuclear Science and Technology (AFRA) projects, five regional meetings were organized and several expert missions were undertaken to assist national nuclear institutes of AFRA Member States to align their on-going programmes with national development objectives, to shift focus to need-driven activities that can generate income and enhance relevance, and to consolidate partnerships with regional organizations.

B.1.1. Improving Animal Health and Promoting Livestock Production

43. Under project URT/5/021, ‘Livestock Development in Zanzibar after Tsetse Eradication’, more than 500 animals have been vaccinated against East Coast Fever since January 2001, thus reducing the calf mortality rate by 50%. The success rate of artificial insemination services is steadily increasing. From January to August 2003, a total of 2445 inseminations were conducted with a success rate greater than 75% on the local zebu cattle. A socio-economic impact assessment, finalized in 2003, revealed that the contribution of agriculture to the overall gross domestic product increased from 34% in 1999 to 39% in 2001.

44. Within the framework of the Agency's support to IBAR's Pan African Programme on Control of Epizootics (PACE), and through the implementation of project RAF/5/053, 'Assistance to OAU/IBAR PACE Programme for the Control and Eradication of Major Diseases Affecting Livestock', assistance was provided through the services of a regional expert to help the Central African Republic, Cote d'Ivoire and the Democratic Republic of the Congo in their efforts to eradicate rinderpest. In June 2003, nine African countries, of which six are Member States (Benin, Burkina Faso, Ghana, Mali, Niger and Senegal), were declared officially free from rinderpest at the International Office of Epizootics (OIE) annual General Assembly. This will now make it easier for these countries to trade livestock products both nationally and internationally.

B.1.2. Strengthening Medical Diagnostics

45. In Mauritius, data starting from 1987 show that there is an increase in non-communicable diseases, such as diabetes, obesity and hypertension. Under the first phase of project MAR/6/006, 'Management of Diabetes Mellitus', the Agency assisted Victoria Hospital in establishing a radioimmunoassay (RIA) capability at the central laboratory for accurate diagnosis of diabetes mellitus. Further Agency assistance was provided under phase II of the project to expand the scope of RIA services and extend diagnostic services in the country. Through this work, it is expected to expand the RIA capability to detect renal complications of diabetes mellitus and to identify type-2 diabetic patients who require insulin therapy.

46. With the completion of project ZIM/6/007, 'Control of Cervical Cancer Associated Human Papilloma Virus (HPV)', molecular techniques were established at the University of Zimbabwe for the early detection and typing of HPV, a virus associated with cervical cancer. Analysis of 150 samples confirmed that HPV type-16 was the most prevalent and this information is being used to simplify diagnosis and to support vaccine studies.

B.1.3. Developing National Capabilities for Industrial Quality Control

47. Project EGY/8/015, 'Upgrading the Electron Beam Accelerator for Industrial Applications', was initiated in 2001 with the objective of developing industrial applications for radiation processing of polymers by using the electron accelerator operating at the National Center for Radiation Research and Technology (NCRRT). One application that had been selected for implementation was hydrogel production as wound dressing materials and preparation of composite boards from locally available cellulosic wastes or by-products. The Egyptian Ministry of Health is in the process of approving the radiation-synthesized hygrogels as medical products and a contract has been signed with a private company to transfer the know-how developed at NCRRT for large-scale production and distribution of new wound dressings in Egypt. The facility has also developed radiation sensitive indicators that are distributed overseas through a contract with a private company in the USA. In addition, within the framework of project RAF/8/033, 'Radiation Processing for Materials and Environmental Applications', the NCRRT was appointed as the first Regional Designated Centre in the field of radiation processing.

B.1.4. Managing Water Resources

48. Cooperation with the Agency in the water sector is being given special consideration by the Egyptian national authorities. Activities were pursued in 2003 under project EGY/8/016, 'Using Isotope Techniques to Study Water Resources', which aims at assessing groundwater resources in the Farafra and Bahariya Oases (the western desert of Egypt) in the Nubian Aquifer. The results from the stable isotope and chemical analyses performed have been compiled in a database and the final report has been delivered to the Agency. The major conclusion from the fieldwork, isotope data gathering and aquifer water pumping in the Farafra and Bahariya Oases suggests that the most cost-effective

way of extracting water from the Nubian Aquifer is to drill medium-deep wells rather than deep wells as was the practice in the past.

49. The Government of Zimbabwe allocated more than $10 000 for borehole drilling, with the principal aim of providing clean water for a million people in the second largest city in Zimbabwe, Bulawayo. The use of isotope techniques to assist with this major government initiative matches the objectives of project ZIM/8/004, 'Groundwater Assessment in the Northern Matabeleland'. Chemical analysis for one site and a geophysical survey for four other sites have already been completed and more work is expected to be completed in 2004.

50. The first coordination meeting of project RAF/8/037, 'Sustainable Development and Equitable Utilization of the Common Nile Basin Water Resources', was arranged in conjunction with the Government of Uganda and held at the offices of the Nile Basin Initiative at Entebbe, during April 2003. Six Nile Basin countries are participating and the first phase of the project is focused on using isotope hydrology to assist in determining the water balance of Lake Victoria.

51. The Agency is also involved in a programme for water supply in south-west Uganda. Within the framework of the South Western Towns Water and Sanitation Project funded by the Government of Austria, the Chuho springs, located north of the town of Kisoro, are being tapped for water. Concern has been raised about the long-term sustainability of these springs in terms of both quality and quantity of water. The Agency has provided some assistance under projects UGA/8/004 and RAF/8/029 for the incorporation of isotope hydrology into the study. Preliminary work using isotope techniques was conducted to evaluate the usefulness of the techniques in delineating the source and flow path of Chuho springs. The results helped to pinpoint from where the springs are being recharged and thus a recommendation to protect the area south-east of the Chuho springs from pollution could be made to water authorities.

52. The isotopic investigations carried out in Morocco under project MOR/8/009, 'Using Isotope Techniques to Assess and Manage Groundwater Resources', have helped to better understand the hydrodynamics of the aquifer systems in the two areas of study, namely the Tadla Plain and the Moulouya Basin. As a result of the isotope studies, the model of groundwater flow and transport that was developed by the Water Directorate for the groundwater resource management has been revised.

53. In Niger, the Agency has supported government efforts for the improvement of the quantity, quality, and sustainability of critical groundwater resources in the Zinder region. Data from isotope studies have supported a World Bank project to exploit groundwater resources and build a water network, thus improving water supply for human consumption and irrigation uses within the region.

B.1.5. Promoting Radiation and Waste Safety

54. Achievements under project RAF/9/027, 'National Regulatory Control and Occupational Radiation Protection Programmes', continued. In Mauritius, the Radiation Protection Act was promulgated. Regulations governing the control of radiation sources and different aspects of radiation safety and the security of radioactive material were enacted in Mauritius and Nigeria. A system for thermoluminescent dosimeter-based individual monitoring for external occupational exposure control was installed in Burkina Faso and Gabon, which was followed by training for operating staff. A similar system has been upgraded in Libyan Arab Jamahiriya using local resources.

55. Major developments under project RAF/9/029, 'Development of Technical Capabilities for Sustainable Radiation and Waste Safety', in its third year of activities, concerned programmes for quality assurance and quality control in diagnostic radiology and radiotherapy. Such programmes progressed in a growing number of principal medical institutions of several countries (Egypt, Ethiopia, Ghana, Kenya, Libyan Arab Jamahiriya, Morocco, Nigeria, Sudan, Tunisia and United Republic of

Tanzania), with a view to establishing national centres of excellence in these areas. Regional specialized training events in these areas were held in France and Libyan Arab Jamahiriya.

B.2. East Asia and the Pacific

56. The implementation of the 2003–2004 technical cooperation programme in East Asia and the Pacific region was adversely affected during the first half of the year due to the spread of Severe Acute Respiratory Syndrome (SARS) in a number of Member States. The implementation rate in 2003 was 55.5% compared with 65.1% in 2002.

57. The CPF process, as a programme planning tool, has improved the project selection process and helped national authorities to identify the national problems to be addressed with nuclear technologies. Three countries, China, Pakistan and Vietnam, finalized their CPFs in 2003, bringing the total number of countries that have completed CPFs to eight. Indonesia, Malaysia, Mongolia, Philippines and Sri Lanka have already completed the process. Bangladesh, Myanmar and Thailand are in an advanced stage of finalizing their CPFs.

58. Upstream work was undertaken for both national and regional programmes for the 2005–2006 cycle. Recipient countries submitted preliminary information sheets of new national project proposals in early 2003 for initial comments. Upstream missions to recipient countries were conducted and a regional workshop on ‘Planning, Selection and Design of IAEA TC Projects’ was conducted to assist recipient countries to prioritize project requests. National workshops were held in eight countries to improve overall project design.

B.2.1. Eradicating Animal Diseases with Transboundary Effects

59. The last outbreak of rinderpest in Mongolia occurred in 1992 and the last vaccination against rinderpest was carried out in 1997. Under technical cooperation projects, extensive clinical and serological surveillance was undertaken in 2000 and 2002 to establish the absence of rinderpest. In 2003, a national workshop on the diagnosis and surveillance of transboundary animal diseases and on the certification of freedom from rinderpest was conducted through project MON/5/012. The workshop was organized in collaboration with the Global Rinderpest Eradication Programme of FAO and an Asian Development Bank funded livestock project in Mongolia. Through this workshop, a dossier for recognition of freedom from rinderpest in Mongolia was prepared and will be submitted to the OIE for international recognition after a further survey in 2004.

B.2.2. Increasing Crop Productivity

60. Improved banana mutant clones with early fruiting and high yield have been developed in Sri Lanka with assistance of the Agency through radiation-induced mutagenesis and in vitro techniques. In order to release the new mutants on a large scale to farmers, virus indexing must be conducted to minimize the risk of spreading viruses through mass propagated banana mutant clones. With the assistance provided under project SRL/5/036, ‘Virus Screening of Improved Banana Mutants for Large-Scale Dissemination’, an enzyme linked immunosorbent assay (ELISA) based virus testing kit for the detection of banana streak virus (BSV) has been developed, and polymerase chain reaction (PCR) based virus indexing is being established at the Department of Botany, University of Colombo. A new tissue culture laboratory for mass propagation of the new banana mutants has been built with government funds and a non-governmental organization donation at Weligatta, which is located south of Colombo. Submission of micro-propagated and disease-indexed banana mutant clones to national variety trials for official release is expected soon.

61. In Pakistan, with the assistance provided under project PAK/5/037, ‘Biofertilizers for Increasing Sustainable Crop Productivity’, a biofertilizer with the trade name Bio Power has been produced at the

National Institute for Biotechnology and Genetic Engineering (NIBGE). It is distributed on a commercial basis and is used on approximately 30 000 acres of legume, maize, rice and wheat fields. NIBGE is now planning to expand its production capacity. NIBGE has been identified as a resource unit in the field of biofertilizer production, and a number of fellows from other developing countries have been trained at NIBGE.

62. Under the RCA regional project RAS/5/040, 'Enhancement of Genetic Diversity in Food, Pulses and Oil Crops and Establishment of a Mutant Germplasm Network', a number of promising genotypes of crops such as mung bean, sesame, and groundnut have been exchanged among the participating countries and regional mutant multi-location trials are being carried out. A number of mutant varieties have been found to be useful outside donor countries. For example, five mutant mung bean varieties from other countries were identified to have high-yield potentials in Pakistan. Substantial progress has been made in enhancement of genetic diversity in many participating countries, such as selection of drought-tolerant wheat mutants in China and less-shattering sesame mutants in Republic of Korea.

B.2.3. Improving Production of Fruits for Export

63. The Oriental fruit fly (OFF) and Guava fruit fly (GFF) are major fruit pests in Thailand, and are the main constraint to improving fruit production. Insecticide applications are routine and widespread for fruit fly control. Concerns about food safety, environmental pollution, undesirable residues and the preservation of biodiversity demand new and insecticide-independent strategies and technologies for combating fruit flies. Under project THA/5/046, 'Area-Wide Integrated Control of Fruit Flies', a pilot project was initiated for control of OFF and GFF by integrating SIT with other monitoring and control methods in mango production areas of Thailand such as Paktor. The pilot project includes the mass rearing and sterilization of both species by irradiation. The sterile insects were released in the field and complemented by other population suppression methods such as bait sprays and the male annihilation technique and a trapping network of baited traps. As a result of the application of SIT, complemented by other control and suppression methods, Paktor farmers were able to export 60% of the crop to countries that do not import fruits exposed to pesticides.

64. Following the successful control of OFF in Paktor, the Department of Agricultural Extension has launched a second SIT campaign in a pilot area in the Province of Phichit located 450 km north-west of Bangkok. In the 35-km² area, where the campaign was conducted, the results were encouraging and damage has been reduced from more than 80% before SIT use, to an average of less than 5%. The projects in Paktor and Phichit were recently selected by the Ministry of Agriculture and Cooperatives to receive a national award for best agricultural projects.

B.2.4. Providing Healthcare for Children

65. Under project SRL/6/026, 'Nuclear Imaging Services for Sick Children', nuclear medicine physicians and technologists were trained and a SPECT gamma camera was provided to the Lady Ridgeway Hospital for Children in Colombo, Sri Lanka. The nuclear imaging unit is now fully operational and is providing nuclear imaging services for the diagnosis of nephro-urological disorders. Prior to the establishment of this unit, children had to be taken to another hospital further away to be screened.

66. The projects PHI/6/019, 'Neonatal Screening for Congenital Hypothyroidism', and THA/6/029, 'Neonatal Screening to Rural Areas', continued to play a significant role in screening newborn babies for neonatal hypothyroidism both in Thailand and the Philippines. The progress of the two projects has made it possible to increase the number of babies screened, resulting in more cases being detected and treated. Based on the success in the East Asia and the Pacific region, a reference manual on *Guidance for Initiating and Sustaining a National New-born Screening Programme for Congenital*

Hypothyroidism in Developing Countries has been prepared. This manual is an update of the WHO sponsored manual prepared more than 10 years ago. The manual will serve as a guidebook for requirements and best practices on detecting and treating neonatal hypothyroidism not only in the East Asia and the Pacific region, but also in other regions.

B.2.5. Fighting Malaria with Nuclear Medicine

67. Malaria is among the most important health problems in Myanmar, with an annual death rate of 6 people for every 100 000 of the population. The spread of drug-resistant malaria makes the methods of treatment less effective. In addition, scientifically proven data and information on the effective and ineffective drugs were not available to the medical community of Myanmar. Project MYA/6/023, 'Applying Molecular and Radioisotope-based Techniques for Detecting Drug-resistant Malaria', was launched to apply molecular and radioisotope techniques to identify parasite mutations responsible for the drug resistance. The techniques are quick and robust, and thus provide more timely information. With Agency assistance, a molecular laboratory has been established with trained personnel. Samples are collected and analyzed, the results of which are compiled in a database. The survey sites are the same sentinel sites where the WHO's Roll Back Malaria programme is being implemented, which creates close collaboration and exchange of information. The project's outcome will be useful for the development of a drug policy for effective malaria treatment.

B.2.6. Seeking Energy Options for Sustainable Development

68. Support was provided to Indonesia for a comprehensive assessment of various energy sources for long-term energy supply. Project INS/0/016, 'Comparative Assessment of Different Energy Sources for Electricity Generation', was implemented by the national team, with technical support of international experts. The study concluded that nuclear power would become a competitive electricity generating option for Indonesia some time between 2014 and 2020. The results were officially presented to the President of Indonesia. While further development of a nuclear power plant in Indonesia will depend on the decision of Parliament, the study and recommendations are a useful reference for national energy planning.

69. In other related efforts, Indonesia intends to introduce nuclear desalination technology to provide sufficient power and potable water for the public and to support industrialization and tourism in the Madura region. Under the framework of interregional project INT/4/134, Indonesia signed a Memorandum of Understanding (MOU) with the Korea Atomic Energy Research Institute (KAERI) and the Agency for a joint study for a preliminary assessment of the economic feasibility of nuclear desalination. Under the MOU, KAERI is to evaluate technical and safety aspects for the System-Integrated Modular Advanced Reactor (SMART) and the coupling with a desalination plant, including the feasibility of its construction on Madura Island. A preliminary economic feasibility study is being finalized, and the results and conclusions will be available in 2004 for further consideration and a decision by the policy makers.

B.2.7. Establishing Nuclear Safety Regulatory Functions

70. At the request of the Pakistan Nuclear Regulatory Authority (PNRA), a full-scope International Regulatory Review Team (IRRT) mission was conducted in December 2003 under project PAK/9/023, 'Strengthening of Nuclear Safety Regulatory Authority'. The IRRT concluded that the PNRA is a highly competent organization, and has the technical capability to deal with regulatory and technical areas for which it is responsible. Since the PNRA's establishment and separation from the Pakistan Atomic Energy Commission in January 2001, the PNRA has made major progress in improving its effectiveness. The IRRT mission made recommendations to the PNRA to further improve its performance to fully implement the regulatory regime.

B.2.8. Upgrading Radiation Protection Infrastructure

71. Under Model Projects RAS/9/026 and RAS/9/027, the 12 participating Member States continued to receive assistance in upgrading their respective radiation protection infrastructure to meet the requirements of the International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources (BSS).

72. Restructuring of the regulatory bodies in Bangladesh, Thailand and Vietnam continued during 2003. In Thailand, the draft legislation for the separation of the regulatory functions from the promotional and development functions is being finalized for submission to the Cabinet and the Parliament for formal enactment. Mongolia has already taken the major step of separating the two functions and has thereby established an independent regulatory authority reporting directly to the Prime Minister. China has promulgated its revised and upgraded regulations, the China Basic Safety Standard (CBSS), in compliance with the BSS. With the promulgation of the CBSS, the principal responsibilities for the administration of the radiation and nuclear safety legislation has now been bestowed on one body (previously three), namely the State Environmental Protection Administration. Indonesia and Malaysia have finalized the upgrading of their general regulations to make them consistent with the BSS and are awaiting approval by their respective governments.

73. Malaysia and Pakistan have made significant progress in bringing their either previously exempted or unlicensed radiation practices and sources under regulatory control. For Pakistan it was medical X-ray units that were not previously licensed. For Malaysia it was Government practices that were exempt from regulation.

74. A peer review mission to assess the effectiveness of the regulatory programme in Vietnam was completed in August. The mission concluded that Vietnam has achieved the first milestone of the Model Project on ‘National Regulatory Control and Occupational Radiation Protection Programmes’. Regarding milestone 2, the mission concluded that the main elements are in place; however, workplace monitoring is still in the process of being fully established.

75. The Agency’s one-year postgraduate educational course (PGEC) in radiation protection, established in cooperation with the Malaysian Government, has now been fully outsourced to the Malaysian authorities. The second course has been concluded. Nineteen persons graduated in February 2003. The third PGEC with 18 students from the region and 1 from the Islamic Republic of Iran and 4 from the host country started in December 2003.

B.3. Europe

76. In 2003, Europe achieved a record high implementation rate of 82.8%. The emphasis of the technical cooperation programme in Europe is to further strengthen the safety and security infrastructures in Member States towards self-reliance; to contribute to the success of national health programmes; to address newly emerging challenges such as decommissioning of nuclear power plants or their life extension; to upgrade radiation and waste safety infrastructures; and to find remedies for major environmental issues in the region, while increasing the share of donors and government participation in project financing and implementation. Coordination of safety and security activities remained high on the agenda of priorities for the region.

77. Europe reached its target for CPF completion in 2003, bringing the total number of approved CPFs in Europe to 25. The CPF helps to identify and agree on the priority areas to be addressed with nuclear technologies in the frame of technical cooperation with the Agency and visualize the results expected in a given time frame.

B.3.1. Returning Fresh Highly Enriched Uranium Research Reactor Nuclear Fuel to Russia

78. In addition to the on-going HEU research reactor fuel disposition projects at Vinca, Serbia and Montenegro, two new projects of similar purpose were initiated in 2003. This effort is an integral part of moving HEU fuel back to the country of origin and subsequent conversion to low enriched uranium (LEU) fuel for research reactor applications worldwide.

79. The HEU fuel removal from Romania (September 2003) and from Bulgaria (December 2003) was the start of a multifaceted project involving extrabudgetary funding provided by the United States of America. Fuel was transported from Bulgaria to the Russian Federation under the trilateral contract between the Agency, the Bulgarian Institute for Nuclear Research and Nuclear Energy (INRNE) and the Russian company Sosny. This was the first time the technical cooperation programme took part in such an important and sensitive operation, and all relevant levels of the Agency were involved.

80. The removal of the fresh Russian HEU fuel stored at a shutdown reactor in Romania was an integral part of the United States of America's offer of assistance towards conversion of the Pitesti research reactor and the procurement of LEU fuel. The fuel rods, which will supply the Pitesti reactor until 2013, are scheduled for delivery between 2004 and 2006. The contract, awarded by the Agency under a technical cooperation project with the Government of Romania and a French company for the design and production of nuclear fuel, calls for the manufacture and delivery of 400 TRIGA fuel rods and other related hardware and services with LEU fuel. The Pitesti reactor has been one of the most powerful TRIGA reactors in the world since it first went critical in 1979. With a power of 14 MW(e), the reactor is used to produce radioisotopes for cancer diagnosis and treatment and to test material, in particular, the behaviour of certain irradiated fuels.

B.3.2. Expanding Cancer Treatment

81. Statistics show that cancer rates in Europe are rising, and this health concern remains a top priority of the region's technical cooperation programme. Among the 450 million people in the 27 recipient Member States of Europe, there are about 1.3 million new cases of cancer diagnosed each year. The Agency's overall priority in health is the efficient, safe and cost-effective diagnosis and management of cancer in Member States. Two regional projects in Europe focused on cancer diagnosis and treatment. Project RER/6/011, 'Thematic Programme on Nuclear Medicine', aims to upgrade nuclear medicine practices to international standards in national hospitals. Three regional training courses were held covering applications of radionuclide techniques in nephro-urology, treatment of oncology disorders, and clinical applications of PET and SPECT. Rhenium generators were also supplied to several countries in the region.

82. Through project RER/6/012, 'Quality Assurance/Quality Control in Radiation Oncology', the Agency provides training in radiotherapy to upgrade the skills of clinicians, medical physicists, and radiation technologists. Six regional courses were held covering various aspects of radiotherapy physics and radiation oncology such as radiation treatment planning, modern brachytherapy techniques, clinical physics including dose determination in radiotherapy, imaging for target volume determination and evidence-based radiation oncology. A technical meeting held in 2003 developed draft guidelines on comprehensive audit methodology of a radiotherapy department. The number of participants in training courses in radiation oncology and medical physics in Europe has seen an increase from 43 in 1997 to 142 in 2003.

B.3.3. Enhancing Education and Training in Radiation Protection

83. In line with the long-term Agency strategy aimed at achieving compliance with the BSS by all Member States, a number of activities were carried out under the European regional programme addressing the implementation of relevant radiation protection requirements. In 2003, 21 Member States from the European region took part in two such projects, more than 10 of which have already attained the principal requirements of the BSS, and another 4 countries have good prospects to do so by the end of 2004.

84. In support of the Agency's efforts in radiation source control, the Greek Atomic Energy Commission (GAEC) hosted the Agency's PGEC in radiation protection and the safety of sources in English. This 18-week course was organized by GAEC in Athens, in cooperation with the Demokritos National Centre for Scientific Research and other Greek institutions. Altogether, the course was attended by 21 participants from 19 Member States (Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Bulgaria, Croatia, Estonia, Georgia, Greece, Hungary, Latvia, Lithuania, Malta, Republic of Moldova, Romania, Serbia and Montenegro, Slovenia, the Former Yugoslav Republic of Macedonia, and Turkey). The GAEC is in the process of becoming a regional postgraduate educational centre in radiation protection to serve the needs of Member States in Europe. Previous postgraduate courses conducted in Russian were organized in Minsk, Belarus, and hosted by the International Sakharov Environmental University.

B.3.4. Completing the Black Sea Project

85. Regional project RER/2/003, 'Marine Environmental Assessment of the Black Sea Region', came to a close in 2003. Under the scope of the project, the six Member States bordering the Black Sea developed a monitoring programme for the marine environment and, with the use of radioactive tracers, undertook an assessment of the key processes controlling the fate of contaminants in the Black Sea. The project established a reliable basis for Black Sea environmental management decisions as well as plans for remedial action in coordination with other national and regional programmes. Training and equipment for sampling, radio-analytical work and for radionuclide counting and spectrometry were provided to the main participating institutes from Bulgaria, Georgia, Romania, the Russian Federation, Turkey and Ukraine. Quality control and quality assurance were key components of the project in assisting the participating laboratories towards producing reliable and comparable data. Technology transfer not only includes building national scientific and technical capacity, but also building bridges of cooperation between countries and people. One of the key achievements of this project was the establishment of an international team of experts and series of laboratories that continue to collaborate on this issue.

B.3.5. Moving Forward with Nuclear Security

86. In the area of activities related to security and combating illicit trafficking of nuclear and other radioactive materials, planning and implementation was carried out according to an Agency action plan aimed at upgrading protection against acts of terrorism involving nuclear and other radioactive materials. In total, 21 technical cooperation projects (12 national and 9 regional) were implemented using combined TCF and Nuclear Security Fund resources. Sixteen projects were related to the Europe region, where fact-finding missions were completed and the installation of detection technology at selected border crossings and the training of personnel were started.

B.4. Latin America

87. The Latin America region achieved an implementation rate of 80.3% in 2003, reflecting the strong commitment of Member States. As a result of intensive upstream work, 149 project requests, including regional project requests, were submitted to the Agency for consideration. The upstream work had two major phases. In the first phase, Member States were asked to review their national development plans and identify areas where the Agency's technical capabilities could make a contribution.

88. Once Member States defined their priorities, the second phase began with the training of potential counterparts in the logical framework methodology. Three regional workshops were implemented in Bolivia, El Salvador and Panama. Approximately 110 potential counterparts were trained in the logical framework methodology and received information on the Agency and the technical cooperation programme. As part of the lessons learned from previous upstream work, roles and responsibilities were clarified for everyone involved in project preparation and formulation.

89. Working towards strengthening the institutional infrastructure in the nuclear sector through strategic planning under project RLA/0/020, all Member States of the Latin America region have now acquired a clear understanding of the benefits that can be drawn from monitoring and evaluation of technical cooperation projects. Through three regional workshops, the necessary tools for monitoring and evaluation, a component of results-based management and a requirement for any strategic planning, have been transferred to some 130 technical cooperation national and regional project counterparts, including ARCAL project coordinators. Work is continuing in six countries with strategic plans in place or about to be finalized to develop the basic elements for a strategic partnership with the Agency in order to draw the maximum benefit from all the programmes of the Agency in accordance with the objectives and priorities identified through strategic planning.

90. In February 2003, Honduras became a new Member State and was immediately assisted by the Agency in addressing the leakage in a dam, which is used to produce the majority of electricity for the country.

B.4.1. Screening for Infectious Diseases

91. Infections caused by the hepatitis B virus (HBV) and the hepatitis C virus (HCV) are among the greatest public health problems throughout the world in view of their prevalence and the limited effectiveness of available therapies. The most common route by which the HCV spreads is through contact with blood and body fluids. The risk of contracting an infection after transfusion of only one unit of blood ranges from 1%–15% worldwide if there is no screening for HCV. Developed countries have been applying HCV screening methods to all blood products for over a decade in order to avoid post-transfusion infection. In Latin America, this test is not widely used because of its high cost. Therefore, the possibility of transmitting this disease through blood transfusion is significantly higher in Latin America than in other regions that have fully adopted a screening process.

92. Project RLA/6/039 (ARCAL XI), 'Screening and Diagnosis of Hepatitis C', implemented from 1999 to 2003, was successful in introducing the use of a low-cost reactive agent for the diagnosis of HCV developed by the branch in Costa Rica of the Louisiana State University-International Center for Medical Research and Training. The statistical information gathered on the presence of HCV through 20 000 blood sample analyses using this reactive agent with serological RIA methodology contributed to the understanding of the HCV epidemic in the participating countries. All the trained personnel promoted this methodology and established a network for the exchange of technical and scientific information among institutions in the participating countries.

93. The work initiated in project RLA/6/039 was further developed under a related project started in 2001, RLA/6/044 (ARCAL LVI), 'Application of Molecular Biology for the Diagnosis of Infectious Diseases'. Increased clinical and sustainable use of molecular isotopic diagnostic and genotyping methods for HBV and HCV in regional laboratories in 35 hospitals of 9 Latin American countries (Argentina, Bolivia, Brazil, Chile, Costa Rica, Cuba, Mexico, Peru, and Uruguay) has resulted in benefits to the patients and national health sectors.

94. Key to the success of these two projects has been the support provided by all counterparts through the availability of their staff and infrastructure to conduct tests, to participate in training and to transfer the knowledge to colleagues. National commitment was evident through contributions of equipment, reagents and in three cases, upgrading of laboratory facilities. Extensive collaborative networks were established as a result of the project, including networking outside the region. Awareness was raised about the availability and utility of the technology through five publications, six presentations at congresses and 54 seminars prepared by counterparts, specifically targeted at clinicians.

B.4.2. Using Simulators to Improve Cancer Therapy

95. Project URU/6/025 had a clear objective, which was to improve the quality of radiotherapy treatment by enhancing the radiological imaging of the tumour region in patients. The institution, Hospital Pereira in Montevideo, Uruguay, has three cobalt radiotherapy machines and a low dose rate caesium brachytherapy unit. While this is sufficient to treat the more than 1500 cancer patients annually, the absence of good quality imaging compromises the cancer cure rate of those suffering from the disease. Three scientific visits and three fellowships were provided to ensure optimal use of the equipment prior to the Agency providing a new radiotherapy simulator (X-ray imaging device). The project was successful in increasing the precision and quality of the radiotherapy treatments. By providing modern equipment and training in its use, the hospital was able to give better cancer treatment and thus potentially decrease the number of treatment complications. The hospital is now eligible to become a national centre of competence in radiotherapy, and to be used as a regional training centre.

B.4.3. Enhancing Cattle Productivity and Protecting Cattle from Diseases

96. In December 2000, the Animal Science Department of the University of El Salvador submitted a project request for RIA and related techniques to support programmes for reproductive biotechnology and health in ruminants in El Salvador. At the same time, the Ministry of Agriculture and Livestock of El Salvador presented a project request in the area of animal health. These two requests were integrated as one project, ELS/5/009, 'Improving Cattle Production and Quality Control for Monitoring Animal Diseases', which offered a shared budget that was executed in two parts. The University developed the component of animal reproduction and the Ministry of Agriculture and Livestock a component of animal health. Catalyzed by this project, efforts have been made to establish relationships between the University of El Salvador and the producers, dairy associations and the Ministry of Agriculture and Livestock for diagnostic studies that enable the improvement of livestock in the country.

97. The University of El Salvador imparted to the dairy farmers' cooperative in the country the results for correlating feeding patterns with the reproduction cycles of cattle. This correlation led to the improvement of practices for animal and farm management as well as for enhancing the profitability of dairy farming. These improvements have reached more than 67% of registered farmers who have small herds and whose productive and economic performance is low. However, the improvement in response to changes in cattle and dairy production will only be quantified in one to three years.

98. The project also established in the Veterinary Diagnostic Laboratory of the Ministry of Agriculture and Livestock the RIA technology for determining the current problems relating to fertility and reproductive management of dairy cattle in El Salvador, resulting in the generation of crucial information that previously did not exist. It enhanced the capabilities of the laboratory for investigating livestock diseases and other animal health activities. The assays regularly provide results for better national disease surveillance and improved provision of diagnostic services to livestock farmers.

B.4.4. Developing Capabilities for the Safe Export of Shellfish

99. Assistance provided under the Programme Reserve project CHI/7/009, 'Development of a National Capability for Receptor Binding Assay to Detect and Quantify Shellfish Poisoning Toxins', has complemented the efforts and funding to obtain analytical capabilities to test shellfish samples for saxitoxins. The technique transferred is the receptor binding assay (RBA), to be used on a routine basis rather than the mouse-based assay, which is time-consuming and costly. A national comparison of costs made by the Laboratory of Marine Toxins (LABTOX) of Chile determined that RBA costs one-third less than the traditional mouse-based assay, and generates results quicker. The national laboratory has been certified to handle radioactive compounds for this analysis as well. The ability of the laboratories to perform RBA will benefit the commercial shellfish industry in the country, which is a multi-million dollar export for Chile.

100. In addition, the Development Fund of the Chilean National Commission for Scientific and Technological Research approved a 2-year grant for LABTOX in March 2003 for the development of new technologies and regulations to detoxify shellfish of commercial relevance. This complements the resources provided by the technical cooperation project and enables the construction of a laboratory to study the effects of the shellfish canning process on detoxification. The results will help set industrial norms to certify production plants eligible to process toxic shellfish as well as proposals for new regulations on shellfish harvesting from sites that suffer from harmful algae blooms.

B.4.5. Reducing Gas Vessel Accidents through Non-destructive Testing

101. Through project GUA/8/012, "Using Non-destructive Testing to Inspect Liquefied Petroleum Gas Cylinders", Guatemala has been able to substantially reduce the accidents caused by liquefied petroleum gas (LPG) vessels from 57% of the total fires of structural origin in 2002 at the national level to 20% in 2003. The Agency's assistance allowed the country to strengthen its technical capabilities for better quality control inspections using non-destructive testing techniques. Guatemala has established a permanent quality control programme by means of non-destructive testing sampling and inspections methods for both gas cylinders in local circulation and imported ones.

B.5. West Asia

102. During 2003, the security environment in West Asia had a negative impact on the implementation of the technical cooperation programme in the region, and as a result, the 2003 implementation rate was more than 8% lower than the 74.2% implementation rate of 2002. However, these negative effects were minimized through a combination of venue changes and re-scheduling some of the programme's activities in order to achieve the desired results. Consequently, by the end of 2003, the programme had succeeded in implementing a total of 99 fellowships, 31 scientific visits, 29 meetings, 19 training courses, 247 requests for procurement, and 253 expert missions. Moreover, Member States' consultations and upstream work for the identification of good-quality projects were undertaken at every opportunity and in a manner that resulted in the submission of a total of 85 new project proposals for consideration under the 2005–2006 technical cooperation programme. At

present, West Asia's membership comprises 16 Member States, including Kyrgyzstan, which became a Member State in September 2003.

103. The implementation of the national technical cooperation projects for Iraq and its participation in some regional West Asia projects continued to be on hold during 2003.

B.5.1. Fulfilling Government Commitments

104. Over and above the agreed support by the Member States' governments in West Asia to their respective technical cooperation projects, an additional $1.3 million in government cost-sharing was received in support of five projects during 2003.

105. Under ISR/5/010, the SIT-based medfly control activities in Israel have benefited the farming community and have led to substantial improvements in the production and export of medfly-free vegetable commodities from the Arava Valley. Similarly, JOR/5/009 has supported the initiation of a centralized medfly control programme in the Jordan Valley and has helped create favorable conditions in the Araba Valley for the development of high-value green-housed agriculture for exports of medfly-free commodities. Project PAL/5/002 continues to build up the necessary Palestinian capacity for future use of an area-wide medfly suppression operations in TUJPA. Simultaneous implementation of the above three national projects that focus on the use of the SIT to control the Mediterranean fruit fly in the Middle East has demonstrated the advantage of applying an area-wide approach to address a pest management problem that has transboundary implications.

106. As a result of the above activities, major steps were taken during 2003 in order to facilitate the establishment of a commercial medfly rearing facility in Israel that can provide an adequate and dependable supply of sterile flies in order to ensure the sustainable use of the SIT in the Middle East.

B.5.2. Building Partnerships through ARASIA

107. The newly established Co-operative Agreement for Arab States in Asia for Research, Development and Training related to Nuclear Science and Technology (ARASIA), which entered into force on 29 July 2002, has started implementing activities under its two ongoing technical cooperation projects. Project RAW/0/014, 'Comparative Assessment of Electricity Generation Options', is an example of the participating Member States' commitment to explore and (where possible) integrate their national electricity grids. The project aims to establish a channel for cooperation between energy system specialists, and focuses on developing the participating Member States' capacity for conducting comparative assessment studies of electricity generation options under interconnected grids and elaborating sustainable energy strategies. The workplan of ARASIA's second project, which was elaborated during the project's coordination meeting in August 2003, aims at enhancing the Member States' capability for setting up training and certification systems for the application of non-destructive testing.

B.5.3. Supporting National Medical Centres

108. The healthcare systems of West Asia Member States have benefited considerably from the exposure of their young professionals to the modern nuclear techniques and tools that constitute the themes of the regional training courses arranged under project RAW/6/010. The outcome of these training activities, in addition to the direct input that they provide to the national healthcare systems in terms of acquired experience, is a very high level of interaction and networking between the participating young physicians which is an essential precursor to future regional cooperation in this field. During 2003, three regional training courses were held on nuclear oncology, nuclear cardiology, and scintimammography in the management of breast cancer.

109. Assistance to Member States is currently being provided under a number of projects to support their efforts to establish national facilities for the promotion of research and development in radiotherapy. Under project SYR/8/008, the Agency is assisting the Syrian Arab Republic to set up an accelerator-based analytical programme around its recently acquired multi purpose 3.0-MV Tandetron accelerator facility, while Saudi Arabia is similarly being provided with expert advice, under project SAU/8/008, for the installation and commissioning programme of its first electron beam machine under a cost-sharing scheme.

B.5.4. Infrastructure Building in Radiation Protection

110. Tajikistan, as a relatively new Member State, received extensive Agency support in the field of radiation protection and has successfully managed to promulgate its radiation safety law by establishing a nuclear and radiation safety agency as its radiation protection regulatory authority.

111. Radiation protection regulations were enacted in Jordan, Kazakhstan, Kuwait, Qatar, United Arab Emirates, Uzbekistan, and Yemen. This positive step has promoted the establishment and effectiveness of a system of notification, authorization, inspection and enforcement in such countries, as well as maintaining an inventory of radiation sources in these Member States. Support was also provided for establishing and maintaining individual external monitoring services in a number of Member States. All the participating Member States were further supported through staff training in the fields of medical exposure control in diagnostic radiology, radiotherapy and nuclear medicine as well as by the provision of equipment and expert services in establishing a national pilot project in medical exposure control in diagnostic radiology. The participating countries have received some training and expert advice to establish emergency preparedness and response capabilities. A few Member States have already started drafting their national emergency plans, which are currently at different stages of approval. Qatar, Saudi Arabia and Yemen have successfully hosted peer review missions.

112. Under projects RAW/9/008, ‘National Regulatory Control and Occupational Radiation Protection Programmes’, and RAW/9/009, ‘Development of Technical Capabilities for Sustainable Radiation and Waste Safety Infrastructure’, support was provided for the implementation of seven regional training courses and 10 national courses on a range of specialized radiation protection and safety topics in Arabic, English, and Russian using standardized Agency training materials. On the planning side, Agency-supported radiation protection activities under projects RAW/9/008 and RAW/9/009 were harmonized and coordinated during a five-day regional coordination seminar held in Abu Dhabi, United Arab Emirates in June 2003. The meeting was attended by 23 project counterparts and policy makers from the region.

113. The third 10-month radiation protection training course in Arabic started in September 2003 in Damascus, Syrian Arab Republic. The Atomic Energy Commission of Syria has recently concluded an agreement with Damascus University for the eventual award of a postgraduate diploma, by the Faculty of Science, to successful course participants. This radiation protection course is designed to provide young professionals with the necessary qualifications for future responsibilities within their respective regulatory authorities. The current course is being attended by 20 participants from eight countries including three from Arab-speaking Africa.

B.5.5. Raising Awareness for Nuclear Security

114. The technical cooperation mechanism was used for the first time in West Asia to implement a number of training activities under project RAW/0/015, ‘Physical Protection and Security of Nuclear Materials’, with financial support provided by the Nuclear Security Fund. The first regional awareness seminar on ‘Combating the Illicit Trafficking of Nuclear and other Radioactive Materials’ was held in Amman, Jordan, during December 2003. The seminar aimed at providing managers and decision-

makers with an in-depth briefing of Agency information and appropriate measures to monitor, detect, identify and respond to incidents of illicit trafficking involving nuclear and other radioactive materials. Earlier in the year, the same theme was introduced to the West Asia region through two training courses; the first of which focused on the practical operation of physical protection systems while the second one dealt with combating illicit trafficking of radioactive material.

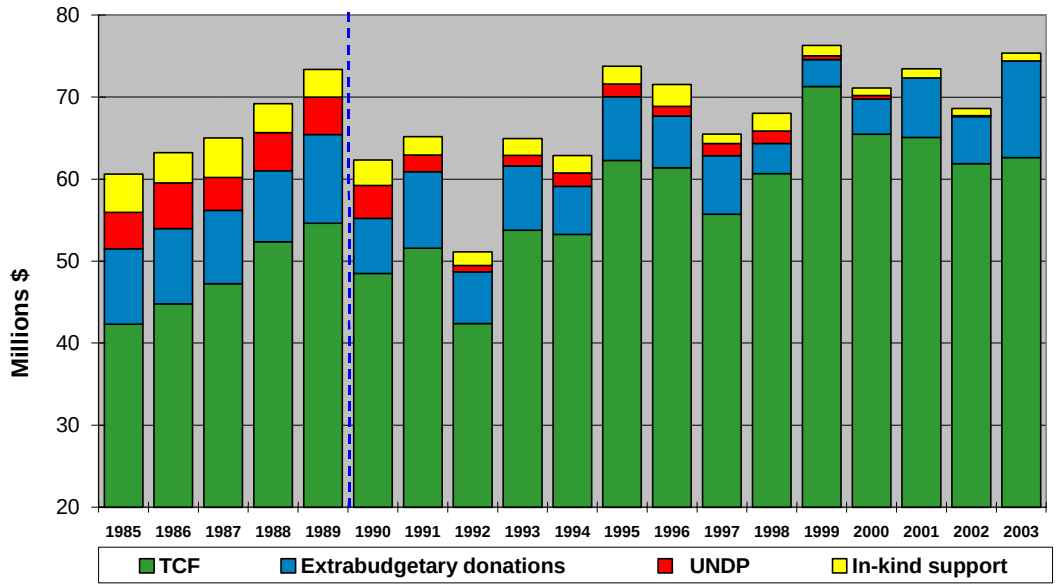
C. Financial Resources and Programme Delivery Indicators

C.1. Overview: Year Summary

115. The year was a challenging one with regard to both resources and delivery of the technical cooperation programme. While total new resources were greater in 2003 than they had been in 2002, the TCF funds actually available as of 31 December 2003 were well below the resource projections on which the 2003 technical cooperation programme had been planned and implemented throughout most of the year. Programme delivery faced a number of hindrances, including the SARS epidemic in East Asia and the Pacific region and security-related issues in several regions.

116. Figure 1 below presents a summary of the technical cooperation programme resources contributed since 1985, adjusted for inflation. As it shows, total new resources received for 2003 were higher than for 2002 by some 11% in current dollars, or nearly 10% when adjusted for inflation. The unpredictability of resource levels which has been evident since 1990 continued in 2003, with the TCF showing a slight gain, extrabudgetary resources growing substantially, and in-kind contributions rising slightly, to just over $900 000.

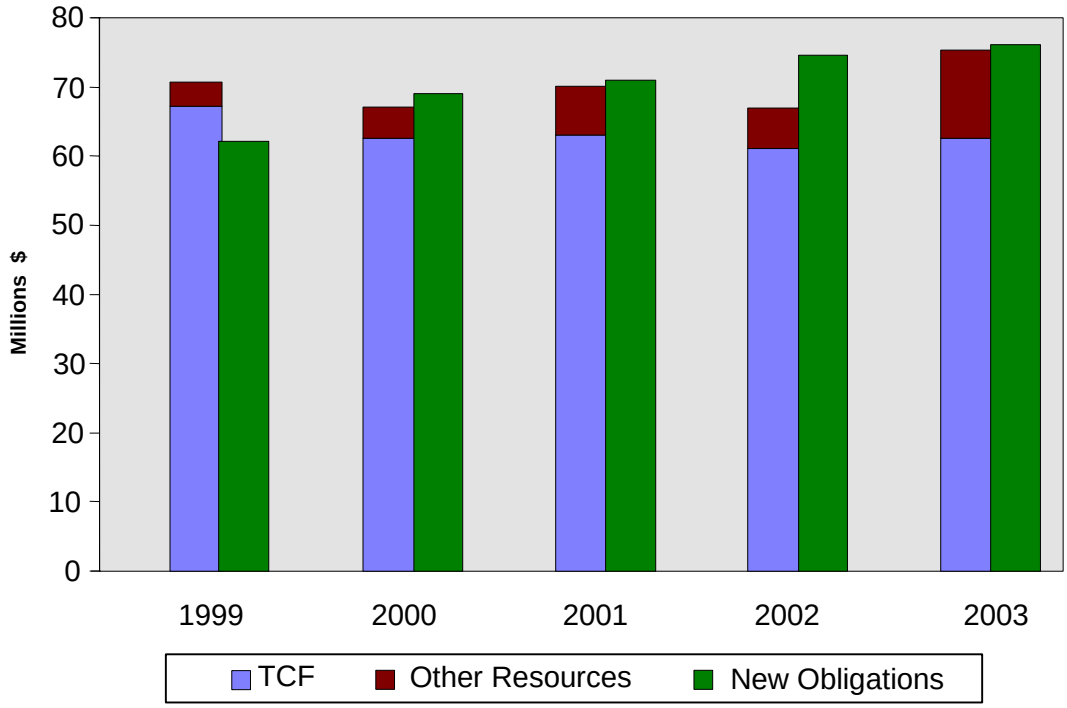
Figure 1. TC Programme Resources Adjusted for Inflation: 1985–2003*



* All figures prior to 2003 adjusted to 2003 dollars.

117. Programme delivery in financial terms, as measured by new obligations, set a new record in 2003 at $76.1 million. This represented an increase of $1.5 million over 2002, or 2%. As can be seen in Figure 2 below, despite the rise in resources, new obligations in 2003 were slightly greater than new resources.

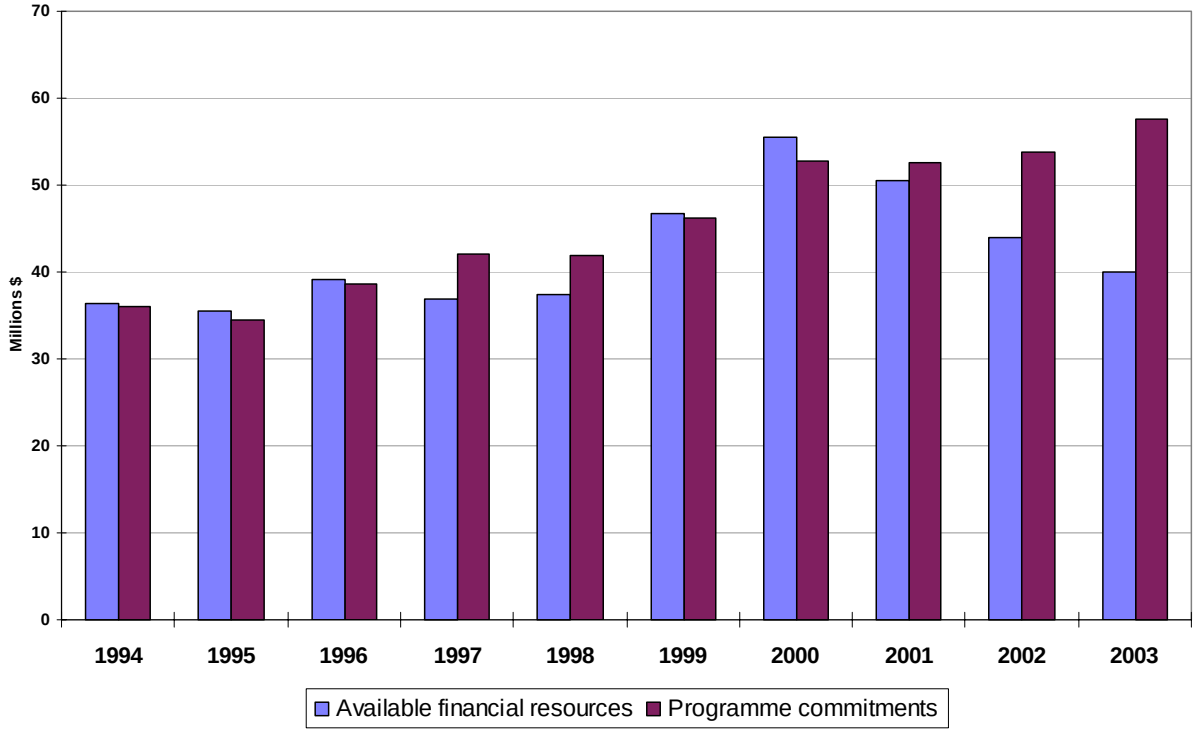
Figure 2. Comparison of New TC Resources with New Obligations: 1999–2003



C.2. Technical Cooperation Fund

118. The complexity of financing the technical cooperation programme becomes apparent when it is seen that, despite having greater TCF resources than in 2002, the programme to be delivered in 2003 was substantially overprogrammed at year end because TCF resources received during the fourth quarter of 2003 were considerably less than had been projected (see Figure 3).

Figure 3. TCF Resources Available and Programme Commitments (as of 31 December 2003)



119. The technical cooperation programme is planned and approved on the basis of expected resources for each financial year. The smooth implementation of this programme is dependent on resources not only being assured, but also predictable. Since notification of the reduction in contributions came very late in the year, the Secretariat reduced and rephased parts of the programme in early 2004 in order to assure the financial soundness of implementation actions, and requested the Board to authorize a higher level of overprogramming through June 2004, to allow Member States and the Secretariat more time to stabilize the resource picture. At the end of the first quarter, resources had begun to stabilize, with significant additional TCF payments being received from Member States for 2003 enabling the Secretariat to reinstate many of the activities that had been postponed or cancelled. Table 1 below lists the payments by the 20 largest contributors to the 2003 TCF target as at 31 March 2004.

Table 1. TCF Payments 2003 (as of 31 March 2004)

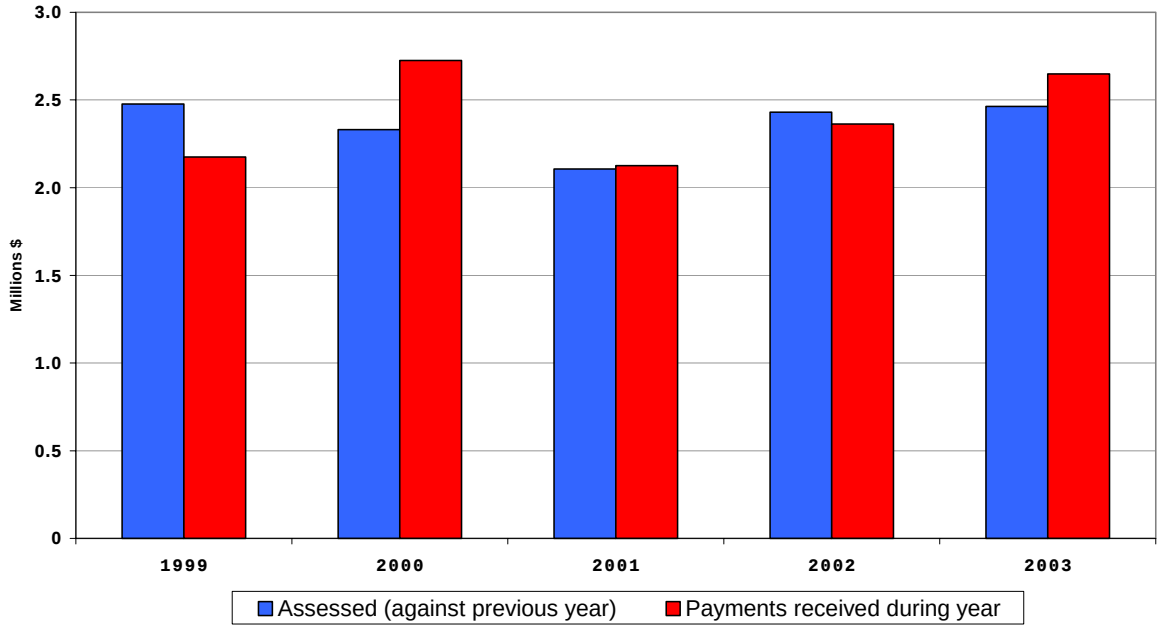
Member State	Payment ($)	Payment as percentage of share	Payment as percentage of total payments
United States of America	18 562 467	99.3%	28.6%
Japan	13 951 340	100.0%	21.5%
France	4 621 793	100.0%	7.1%
Germany	4 506 836	64.5%	6.9%
United Kingdom of Great Britain and Northern Ireland	3 957 265	100.0%	6.1%
Italy	2 302 862	63.6%	3.5%
Canada	1 673 469	91.5%	2.6%
Spain	1 330 462	73.9%	2.0%
Netherlands	1 242 345	100.0%	1.9%
Australia	1 120 787	96.4%	1.7%
China	1 095 835	100.0%	1.7%
Switzerland	903 727	100.0%	1.4%
Russian Federation	851 402	100.0%	1.3%
Korea, Republic of	850 000	64.2%	1.3%
Mexico	776 653	100.0%	1.2%
Sweden	734 045	100.0%	1.1%
Austria	676 488	100.0%	1.0%
Denmark	535 210	100.0%	0.8%
Norway	462 702	100.0%	0.7%
Greece	385 000	100.0%	0.6%
Subtotal	60 540 688	92.3%	93.3%
Others	4 368 128	47.7%	6.7%
Total	64 908 816	86.8%	100.0%

120. An encouraging trend in payments to the TCF can be seen in comparing the figures for 2002 and 2003. In 2003, the 20 Member States paying the largest amounts to the TCF paid 92.3% of their target share, compared with 91.4% in 2002. All other Member States together paid 47.7% of their target share, a significant increase from only 25.3% in 2002.

121. Payments by Member States of their assessed programme costs (APCs) in 2003 exceeded the amount assessed by nearly $200 000, thus reducing arrears to a total of $6 924 325 by year-end. Two additional Member States established formal payment plans for their APC arrears, bringing the total number of such agreements to five.

122. As part of the package adopted by Member States, the Board of Governors suspended APCs in 2004, pending a review of this mechanism to be submitted to the Board in June 2004. Figure 4 provides information on APC payments.

Figure 4. Assessed Programme Costs
Annual Assessment and Total Payments Received: 1999–2003



123. Greater new obligations coupled with reduced resources resulted in a lower unobligated balance (see Table 2). Furthermore, the usable unobligated balance decreased substantially, falling to a record low of $-2.3 million. The Secretariat continued its efforts to reduce the amount of funds on deposit in currencies that cannot be used or can only be used with difficulty to implement the technical cooperation programme. In addition, all Member States were encouraged to pledge and pay their share of the TC target in full and on time, thus increasing resources overall and eliminating amounts which were pledged but not paid.

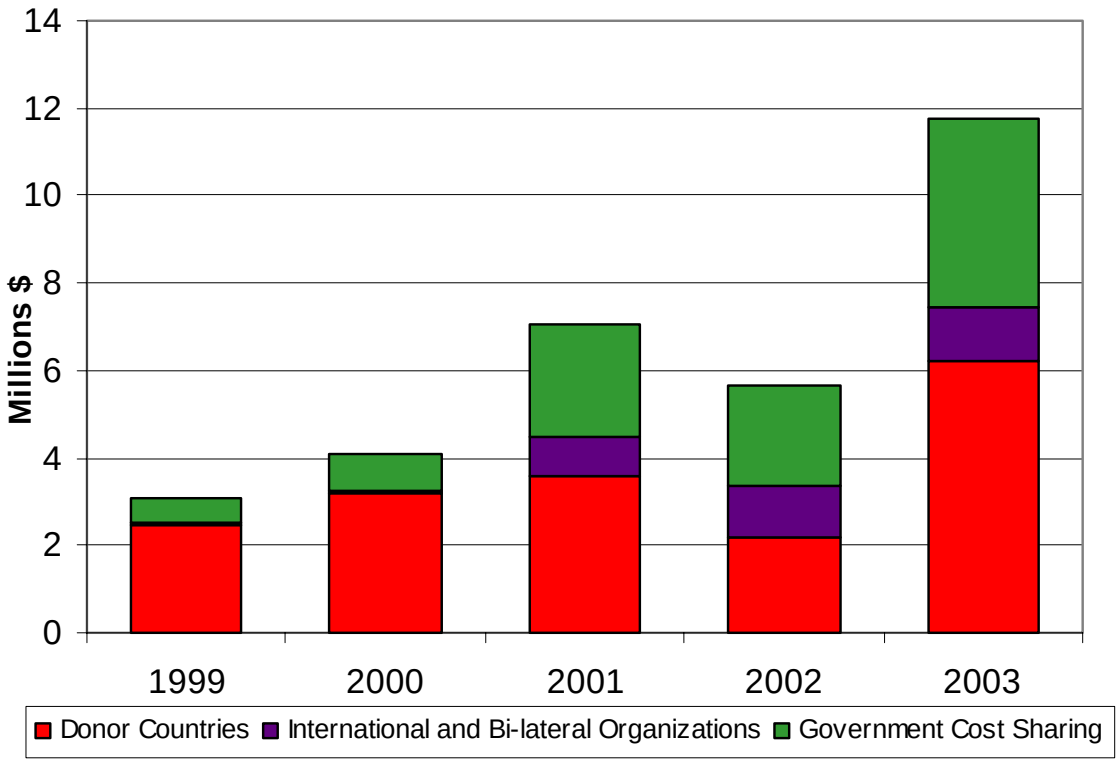
Table 2. Structure of Unobligated Balance: 1999–2003
(US dollars)

	1999	2000	2001	2002	2003
Unobligated balance at year end	18 403 000	19 901 000	17 131 000	9 968 000	6 408 000
Pledges not yet paid	(2 877 000)	(6 894 000)	(2 704 000)	(2 882 000)	(3 299 000)
Non-convertible currencies which cannot be utilized	(1 495 000)	(1 631 000)	(1 878 000)	(1 162 000)	(1 171 000)
Currencies which are difficult to convert and can only be utilized slowly	(2 335 000)	(3 281 000)	(3 468 000)	(4 382 000)	(4 281 000)
Resources which can be used for TC programme obligations	11 696 000	8 095 000	9 081 000	1 542 000	(2 343 000)

C.3. Extrabudgetary Resources

124. New extrabudgetary resources reached a record high of $11.8 million in 2003, up from $5.7 million in 2002. In total, just under $8.5 million was used to upgrade footnote-a/ projects and components. This indicates a willingness on the part of a broad range of donors to work in partnership with the Agency to support activities under the technical cooperation programme. As Figure 5 shows, $4.3 million was contributed through government cost-sharing by Member States to support project activities in their own country. The remaining $7.5 million was received from Member States and international or bilateral organizations for use in specified projects. Included in the $7.5 million is an amount of $537 000 allocated from the Nuclear Security Fund to implement activities under relevant technical cooperation projects. In addition, an amount of $25 000 was provided by UNDP to complete implementation of a project to promote sustainable management of the Nubian Aquifer in northeast Africa.

Figure 5. New Extrabudgetary Resources: 1999–2003



C.4. In-kind Contributions

125. In-kind contributions totalling some $935 000 were provided by 57 Member States and 5 international organizations in 2003. In-kind contributions are credited to Member States that have made available the following types of support: providing expert and training course lecturer services fully or partially cost-free in countries other than their own; sponsoring training course participants from countries other than their own; providing full or partially cost-free fellowship training (type II fellowships); and donating equipment that is received by another Member State. Approximately 44% of this assistance was provided for free or partially free expert services, with an additional 40%

provided by one Member State for cost-free fellowships. The remaining 16% was provided in the framework of training courses.

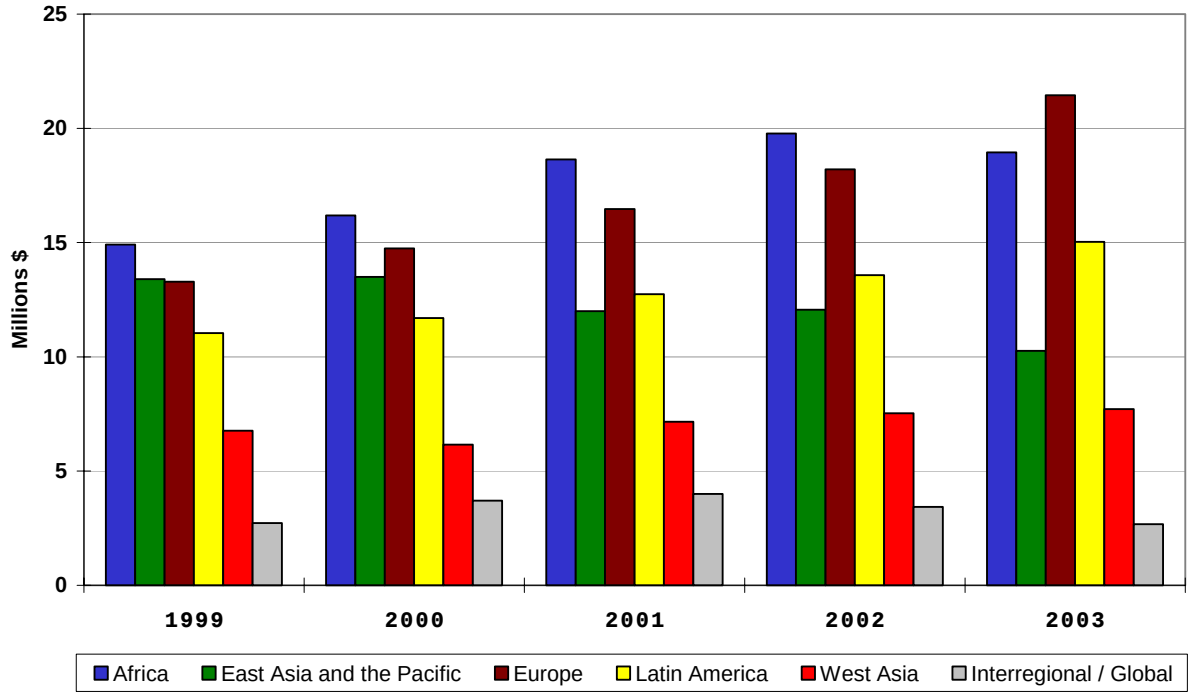
C.5. Programme Delivery Indicators

126. In line with the Agency's results based approach to programming, the Secretariat is developing a new project monitoring system, which will facilitate reporting on the achievement of outputs and outcomes in addition to the currently available financial information.

127. As mentioned earlier, several factors played critical roles in the delivery of the technical cooperation programme during 2003. Early in the year the outbreak of SARS in East Asia, as well as health and travel restrictions elsewhere, caused the cancellation or postponement of a number of events, and brought implementation down in the East Asia and the Pacific region. The Secretariat continues to face problems with travel and visa restrictions imposed by a number of countries since the events of 11 September 2001. Furthermore, the shipment of radiation sources continues to be both difficult and expensive.

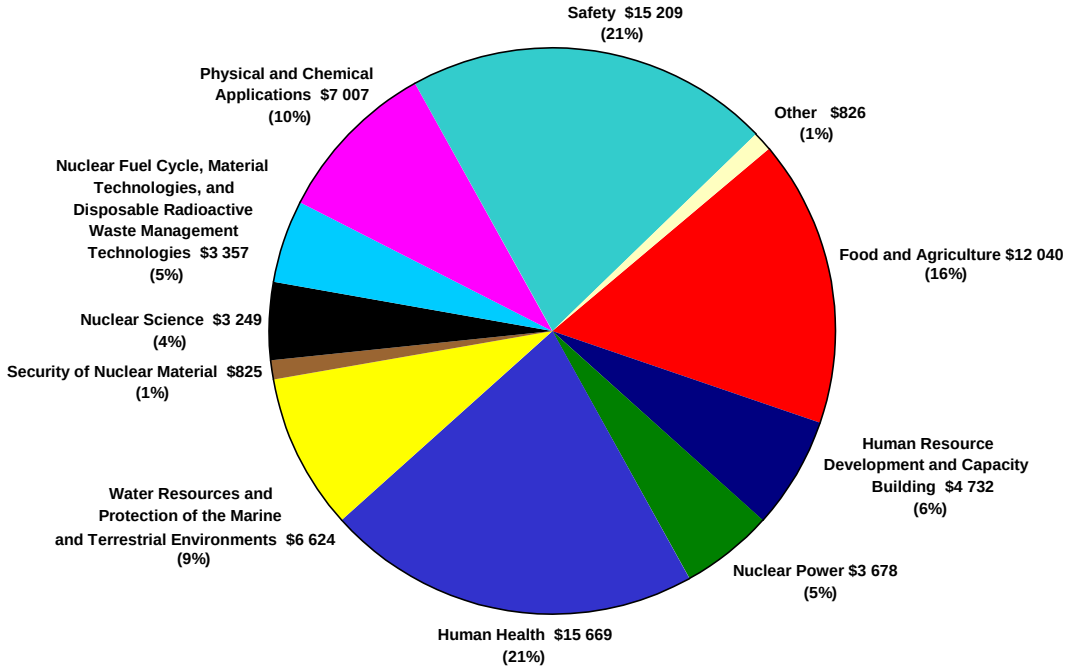
128. New obligations for all funds rose in 2003 to $76.1 million, an increase of $1.5 million over 2002. However, the 2003 programme at year end was $6.8 million greater than the 2002 programme had been, resulting in an overall implementation rate of 72.5%, compared with 76.1% in 2002. Much of the increase in the programme was because of contributions of extrabudgetary resources, many of which arrived late in the year, making use of the funds in 2003 very difficult. Nevertheless, extrabudgetary resources accounted for some $10 million in new obligations and an implementation rate of 64.4% in 2003, compared with $6.2 million and 62.3% in 2002. Figure 6 below shows, by region, new obligations for all funds over the past five years.

Figure 6. New Obligations by Region: 1999–2003



129. Figure 7 shows programme delivery by technical field based on disbursements (including in-kind delivery). Human health remained the largest field, with disbursements of $15.7 million or 21% of total disbursements. Safety also accounted for 21%, with disbursements of $15.2 million. Food and agriculture represented the third largest area, with $12.0 million or 16%.

Figure 7. Distribution by Programme: 2003 (in thousands of dollars)



130. The Supplement to this document contains detailed financial and statistical data on the technical cooperation activities during the year. Table 3 contains a brief summary of financial and statistical indicators to provide a comparison of delivery of outputs in 2003 as compared with 2002.

Table 3. Delivery of Outputs: 2002 and 2003

Indicator	2002	2003	2003 compared with 2002
Adjusted Programme	$98 051 495	$104 893 783	$6 842 288
Net New Obligations	$74 592 830	$76 072 839	$1 480 009
Implementation Rate	76.1%	72.5%	
Disbursements (including In-kind)	$74 835 516	$73 216 576	($1 618 940)
International Expert and Lecturer Assignments	3 351	3 121	(230)
Meeting/Workshop Participants and National Experts	3 356	3 526	170
Fellowships and Scientific Visitors in the Field	1 632	1 411	(221)
Training Course Participants	2 398	2 107	(291)
Training Courses	172	155	(17)
Purchase Orders Placed	3 475	3 110	(365)
Subcontracts Issued	96	23	(73)

131. As can be seen, delivery of outputs was down in almost all areas owing to factors mentioned in paragraph 125. Only the number of participants attending expert meetings increased slightly, up some 5% from the level of 2002.

132. It is expected that the various reviews carried out during 2003 will facilitate delivery of the programme in 2004. Efficient delivery will also be dependent on sufficient and timely resources being made available, both to the TCF and as extrabudgetary contributions.

Glossary

Adjusted programme - the total value of all technical cooperation activities approved and funded for a given calendar year plus all approved assistance brought forward from previous years but not yet implemented. It is against this figure - which is not identical with resources actually available - that the implementation rate is measured.

Assessed programme costs - the cost charged to Member States receiving technical assistance, at present amounting to 8% of the assistance actually provided from both the TCF and extrabudgetary contributions (but excluding UNDP-financed assistance).

Available financial resources - total funds available less disbursements.

Central criterion - A project meets the central criterion if it can be shown that it is in an area of national priority that enjoys strong government support. This means that:

a) It is clearly related to a core competency of the Agency (i.e. it is safety related or deals with nuclear power operations or radioactive waste management) and it has a good chance of achieving its expected result; or,

b) It is in an area where there is a national programme enjoying strong government commitment with evidence of significant financial support.

Country Programme Framework - a descriptive planning process that provides a concise frame of reference for future technical co-operation with Member States.

Disbursements - actual cash outlays for goods provided and services rendered.

Due account - the regime by which the Agency accords preference in terms of TCF allocations and procurement to those Member States with a good record of financial support to the technical co-operation programme. The objective is to increase the level of contributions to the TCF and to improve the record of payment of Assessed Programme Costs.

Dynamic programming - the process whereby funds released through rephasing and reprogramming are used to meet requirements of developing Member States through the implementation of approved projects for which funds would not otherwise be available; it serves to keep project planning realistic.

Earmarkings - amounts allotted for funding approved assistance awaiting implementation.

Extrabudgetary funds - funds provided by Member States for financing specific projects or activities. They also include funds received from Member States to finance assistance for themselves. These funds are separate from voluntary contributions to the Technical Cooperation Fund.

Footnote-a/ projects - projects approved by the Board for which no immediate funds are available.

Global - under the regional breakdown in the implementation summary, this represents those miscellaneous costs which cannot be attributed to individual projects or for which detailed accounting would add significantly to overhead costs. Such expenses include cost of radiation protection services, insurance premiums, UNDP field office charges, reimbursement of support services, mission cancellation costs, publication charges, etc.

Government cost-sharing - funds provided by Member States to augment projects in their own country.

Implementation - the volume of funds obligated (new obligations) in a given period.

Implementation rate - a ratio obtained by dividing implementation by the adjusted programme (expressed as a percentage), reflecting the financial rate of implementation.

In-kind - the value assigned to non-cash contributions.

Model Projects - The model project concept was an instrument of the Technical Cooperation Strategy adopted in 1997. It successfully achieved its objective of raising the quality of project design. The concept has been superseded during the 2001–2002 biennium by the central criterion, which is defined above.

National Expert - TC expert who works for a project in his/her own country.

New obligations - the sum of disbursements during the year plus year-end unliquidated obligations minus unliquidated obligations carried over from the previous year.

New resources - the total value of not previously reported funds received in a calendar year.

Overprogramming - the establishment of annual programming levels that exceed available resources.

Programme year - the year for which an activity is planned.

Programme commitments - total unliquidated obligations for the current year plus earmarkings.

Programme Reserve - an amount set aside by the Board each year for financing assistance of an urgent nature requested after the Board has approved the Regular Programme for the year in question.

Rate of attainment - a percentage arrived at by taking the total voluntary contributions paid by Member States for a particular year and dividing them by the TCF target for the same year. As payments can be made after the year in question, the rate of attainment can increase over time.

Rephasing - a temporary release of funds approved for inputs which were planned for a given programme year and which cannot be implemented as scheduled. Rephasing does not change total inputs approved for a project; rather, it serves to keep project planning realistic.

Technical Cooperation Fund - at present, the main fund for the financing of the Agency's technical cooperation activities; it is supported by voluntary contributions from Member States, 8% assessed programme costs paid by Member States over assistance received and miscellaneous income.

Thematic plan - a prescriptive planning process that focuses on the technology-problem link where TC projects have successfully demonstrated a significant contribution to national socio-economic development, or where solid evidence exists to predict such a contribution.

Type II fellowship - fellowships provided by Member States at little or no cost to the Agency.

Usable unobligated balance - the unobligated balance of the TCF less the sum of pledges not yet paid and the dollar equivalent of currencies, which can only be used with great difficulty. The purpose is to measure the amount of money, which is readily available for technical co-operation programme obligations.

UNDP Programme - projects executed or implemented by the Agency on behalf of UNDP and its associated funds.

Unliquidated obligations - obligations incurred for which no cash outlays have yet been made.