Current Activities and Future Perspectives of the IAEA Contact Expert Group

by Ambassador Torbjörn Norendal, CEG Chairman, Ministry of Foreign Affairs, Norway
and Sergey Bocharov, CEG Executive Secretary, IAEA

The Russian Federation has been facing a number of complicated ecological problems deriving from management of radioactive waste accumulated as a result of past activities in production of nuclear weapons, use of nuclear energy for peaceful and military purposes, and as a result of nuclear arms reduction. A number of countries and international organizations provide assistance to Russia in the field of handling accumulated radioactive waste and spent nuclear fuel in order to resolve the most severe problems.

In order to promote and coordinate these efforts, a special Contact Expert Group (CEG) for International Radwaste Projects in the Russian Federation was established under the auspices of the IAEA in 1996. The need for this coordinating body was recognized already early in May 1995 at the seminar "International Cooperation on Nuclear Waste Management in the Russian Federation" organized by the Agency at the request of Nordic countries.

Currently CEG comprises ten countries: Belgium, Finland, France, Germany, the Netherlands, Norway, the Russian Federation, Sweden, United Kingdom and the United States of America, and four international organizations: European Commission, International Institute for Applied Systems Analysis, International Science and Technology Center, and IAEA. The CEG Secretariat is located in the IAEA Headquarters and operated by the Agency with financial support from the CEG member-countries.

Main objectives of the CEG are:

- to promote co-operation between all countries and international organizations interested in contributing to projects aimed at enhancing the safety of spent fuel and radioactive waste management in the Russian Federation;
- to provide a forum for discussion and exchange of information with the view of identifying main priorities and presenting recommendations on specific projects for further cooperation;
- to avoid redundancy and duplication in project work in Russia and assure that priorities are properly addressed and made known to the international community;
- to provide points of contact to facilitate co-operation.

During its first years of operation the CEG collected detailed information on cooperative activities and Russian needs. This information was arranged in a database on cooperative projects in the Russian Federation and includes now more than 200 project descriptions. The database is maintained by the CEG Secretariat and updated on a semi-annual basis. Information on current status of these projects is available on the CEG web page of the Agency web site: http://www.iaea.org/worldatom/Programmes/CEG/content.html.

About three years ago CEG established a special working group of experts to evaluate the general strategy of the Russian Federation in the area of spent nuclear fuel and radioactive waste management, to assist Russia in improving its strategy and to identify high priority areas for future international cooperation. The work of this group was supported by the European Commission. Its main findings and conclusions are published at the EC website. It was recognized that current environmental problems in Russia are caused mainly by the cold war legacy, and particularly by operation and a massive decommissioning of Russian nuclear

submarines, which has recently been initiated. The following three high priority areas for future cooperation were identified and agreed by the CEG (in order of priority):

1. Remediation of the naval bases in northwestern Russia (especially Andreeva Bay and Gremikha).
2. Recovery and safe interim storage of spent nuclear fuel in withdrawn submarines and floating stores.
3. Management of high-level liquid radioactive waste and sludges in fuel cycle facilities (especially Mayak, Krasnoyarsk and Tomsk).

The Russian Federal Programme on nuclear submarine decommissioning concentrates first of all on defuelling the retired submarines since spent fuel contains about 95% of all the radioactivity in the sub, and thus, poses the main potential hazard to the environment. Recently the Russian Federation reached substantial progress in this work. In the late nineties from 2 to 5 submarines were defueled and dismantled annually, while later 16 and 18 subs were dismantled respectively in 2000 and 2001, and 18 subs will be dismantled in 2002. However, in the beginning of 2002 about half out of the total number of 190 retired Russian submarines, still contained the fuel onboard.

According to the Russian strategy, naval fuel is to be reprocessed to the extent possible at the Mayak reprocessing plant. Its capacity was recently upgraded by a factor of 2.5 in order to maintain the current rate of defuelling submarines. Transportation of spent nuclear fuel was substantially improved: an additional train for transportation of casks was built with assistance of Norway (see photo) and a new metal-concrete cask for spent fuel transportation was developed and tested under the Arctic Military Environmental Cooperation Program (AMEC) between Russia, USA and Norway. 48 such casks were manufactured already and an additional 25 casks will be manufactured in 2002 within the frame of RF-US Common Threat Reduction Program (CTR).

Substantial progress was reached in the area of management of waste generated during submarine dismantling. Treatment facilities for liquid radioactive waste were commissioned at Zvezdochka shipyard in Severodvinsk (under CTR programme) and at Zvezda shipyard near Vladivostok (with assistance of Japan). Capacity of the similar facility at Atomflot enterprise in Murmansk was upgraded from 1500 up to 5000 tons per year with assistance from USA and Norway. A center for solid radwaste conditioning is being created at Polyarninsky shipyard also within the frame of the AMEC Program, and 100 metal containers for solid radwaste were already produced under this Program too.

In addition to the above mentioned, 30 strategic submarines are to be dismantled and two onshore complexes for defuelling the subs are being constructed under the CTR Programme, which also will finance construction of an interim spent fuel storage facility at the Mayak plant. Plans for cooperation between Japan and Russia include dismantling of a second-generation submarine (Victor-class) and reconstruction of the railroad that will accelerate removal of spent fuel from the Far East region.

Thus, the main problems in implementation of the Russian Programme on nuclear submarine decommissioning have been solved. However substantial efforts should be allocated for remediation of ex-naval bases where large amounts of spent nuclear fuel and radioactive waste have been accumulated during decades of operation of the Russian fleet. In most cases storage facilities there require urgent improvements, and international assistance is needed without delay.

Rail cars for spent nuclear fuel transportation designed and manufactured under Norwegian assistance to Russia (courtesy of Ministry of Foreign Affairs of Norway)

Early in 2000 it was recognized that remediation of the ex-navy technical base at Andreeva Bay is one of the most important CEG challenges. This facility is located on the northern shore of the Kola Peninsula approximately 50 km from the Norwegian border. It supported, for more than 30 years, the operation of nuclear submarines. Recently Andreeva Bay base was transferred to Minatom's[1] jurisdiction and became a civilian facility. Substantial amount of SNF (about 100 submarine reactor cores) and different radioactive waste have been accumulated there and stored under conditions, which are reported not to meet current safety requirements, and posing a substantial risk to the Arctic marine environment.

In order to initiate international cooperation for remediation of this facility a specially dedicated CEG workshop was organized and successfully conducted in October 2001 in Idaho Falls, Idaho, USA under sponsorship of DOE, INEEL, MOD and several other US organizations. As a result of the discussion of detailed technical information presented by the Russian side at the workshop, several projects were proposed for immediate initiation under Western sponsorship. The 13th CEG meeting in Oskarshamn, Sweden in November 2001 fully endorsed conclusions and proposals made at the CEG workshop, and shortly thereafter negotiations on several specific projects aiming at the establishment of necessary infrastructure at that site were initiated. Further preparatory activities in the area of SNF and solid radioactive waste management at Andreeva Bay were discussed at the second CEG

[1] Ministry of the Russian Federation for Atomic Energy

workshop on Andreeva Bay remediation (March 2002, Moscow), organized with support of the RF Minatom.

The status of international projects on Andreeva Bay was reviewed at the 14th CEG meeting, which took place in IAEA, Vienna (April 2002). The current situation is as follows:

- The Russian side performs the most urgent activities at the site, including security measures, fragmentation of solid radioactive waste stored at the open pads and their isolation from atmospheric precipitation, and removal of liquid waste from the site to the extent possible.
- Norway is leading activities on improvement of the engineering infrastructure at the site, including the construction of an administrative building, which will be completed soon. Repair of the access road and supply of different equipment are planned for the next stage.
- Sweden will lead activities on the management of solid radioactive waste. Detailed surveys and feasibility studies will be conducted at the beginning of this project. Preparatory activities are under way.
- UK will lead activities on the management of spent nuclear fuel. Feasibility studies and detailed surveys are planned for the initial stage. However, the work has been postponed, pending the signature of a bi-lateral UK-RF agreement on peaceful uses of nuclear power, which has been under negotiation for about two years.
- Norway will lead the project on the improvement of physical protection of the site, and Sweden and USA will participate in this work.
- Norway together with Sweden and Finland will support improvements of radiation protection of the personnel and upgrading the radiation monitoring system.

The EU-Commission, a number of western countries and financing institutions have recently established the Northern Dimension Environmental Partnership Support Fund (NDEP) which will finance environmental and radioactive clean-up projects in north west Russia. The fund amounts at present to 110 million Euro. It will be managed by the European Bank for Reconstruction and Development (EBRD). The implementation of projects by the fund will place further demands on the capacity of the CEG to advise and coordinate radioactive waste management activities in the Russian Federation.

Implementation of nuclear projects under the NDEP will start after final conclusion of the agreement on a Multilateral Nuclear Environmental Programme in the Russian Federation (MNEPR), which establishes a legal framework for technical project cooperation. Negotiations on this agreement between Western countries and the Russian Federation have lasted for about three years and were found to be very difficult.

Taking into account the likely future expansion of international cooperation, the need for close coordination between different projects and agents in the area of radioactive waste management in the Russian Federation is crucial. The experience of the Contact Expert Group in this work was highly acknowledged by different institutions and the importance of its coordinating role is ever increasing.