



EUROPEAN COMMISSION
Directorate-General Enlargement
D - Coordination of Financial Instruments
D3 - Impl., Contracts & Nuclear Task Force

Brussels, 5 November 2003

**INTERNATIONAL ASSISTANCE PROGRAMMES IN ACCESSION COUNTRIES:
PROBLEMS AND ACHIEVEMENTS**

EUROSAFE. 25-26 NOVEMBER PARIS

José A. Gómez Gómez

*European Commission. Directorate General for Enlargement.
Implementation, Contracts and Nuclear Task Force Unit*

Table of contents

1.	INTRODUCTION	2
2.	STRATEGY.....	2
3.	EVALUATION OF NUCLEAR SAFETY IN CANDIDATE COUNTRIES	3
4.	IMPLEMENTATION OF THE PHARE NUCLEAR SAFETY PROGRAMME	4
5.	DECOMMISSIONING.....	6
6.	MAIN ACHIEVEMENTS – IMPACT.....	6
7.	MAIN DIFFICULTIES – LESSONS LEARNT.....	7
8.	THE WAY FORWARD.....	8
9.	SOME EUROPEAN WEB SITES OF INTEREST.....	8

1. INTRODUCTION

The question of the safety of nuclear installations goes beyond national borders, as was dramatically highlighted by the Chernobyl accident in 1986. The citizens of all EU Member States are concerned about the level of safety of nuclear installations in all the Member States and outside the Union also.

In the early nineties the EU decided to take a prominent role in the international efforts to help the New Independent States and Central and Eastern European Countries to improve their levels of nuclear safety. The EU Member States charged the EC with this responsibility. The two major instruments put in place by the EC to deliver the required assistance to these countries have been the Tacis¹ and Phare² programmes. In addition, the EU has Euratom loans and a number of small grant programmes at its disposal. Other Community initiatives have also contributed to enhancing nuclear safety in these countries: Euratom Framework Research Programme, Concertation on European Regulatory Tasks (CONCERT) Group, G-24 Nuclear Safety Assistance Co-ordination (NUSAC), etc.

2. STRATEGY

The EU has been the mainstay of the international strategy drawn up by the G7 in 1992, and the Commission has accepted to take a major responsibility in this area despite its severe, institutional, technical and budgetary constraints.

From the outset, the EU has conducted its strategy as part of a concerted international effort with a twofold thrust:

- The immediate aim was to find practical solutions to the most urgent safety problems. Together with the IAEA, the Commission has been involved in gathering data on Soviet-designed reactors to assess their safety rating; setting up competent independent nuclear safety authorities; and providing on-site assistance aimed at improving the safety of substandard reactors.
- The longer-term objective has been to facilitate the upgrading of power stations which are capable of being modernised and encourage the closure of those which are not. In addition to on-site assistance with modernisation of reactors, the Commission has worked on the development of alternative energy sources and drawing up plans for the decommissioning of units which are to be shut down.

The Phare and Tacis nuclear safety programmes have been developed to pursue the Community's nuclear safety policy objectives, both of which are managed by the European Commission. Euratom loans and a number of other small grant programmes are also available. As part of wider international co-operation in this field the EU has been instrumental in establishing the Nuclear Safety Account (NSA) administered by the European Bank for Reconstruction and Development (EBRD).

¹ TACIS stands for technical assistance to the Commonwealth of Independent States

² PHARE stands for Poland Hungary Aid for Reconstruction of the Economy (now including all central and eastern European Countries)

The strategy followed by the Commission has been set out in more detail in a series of Commission Communications and other types of documents, including the Agenda 2000 – for a stronger and wider Union (July 1997), which placed the issue of nuclear safety in the candidate countries of Central and Eastern Europe in a political perspective; closer relations in the context of enlargement facilitated efforts to strengthen nuclear safety in these countries. Agenda 2000 and subsequently the Accession Partnerships encouraged candidate countries to the EU to close down plants that cannot be upgraded, in line with international agreements (notably the Nuclear Safety Account agreements administered by the EBRD). This applies to certain units at three nuclear power plants: Ignalina, Kozloduy and Bohunice.

The Commission's strategy has been discussed regularly with the other institutions and the Member States. It has been endorsed by several European Council summits, and has taken into consideration EP resolutions. For example at the EU Council of Helsinki in December 1999, the European Council "recalls the importance of high standards of nuclear safety in Central and Eastern Europe. It calls on the Council to consider how to address the issue of nuclear safety in the framework of the enlargement process in accordance with the relevant Council conclusions".

At the same time, the Commission has been in close contact with other donors and organisations that work on nuclear safety in Central and Eastern Europe and the NIS, notably the IAEA, the Nuclear Safety Account which is managed by the EBRD, the G7 Nuclear Safety Working Group, the G24 and the OECD Nuclear Energy Agency.

In the year 2000 the Commission summarised its strategy for support to nuclear safety in the beneficiary countries in its Communication of 6 September 2000, COM (2000) 493 final ("Commission support to nuclear safety in the Newly Independent States and Central and Eastern Europe").

Although the safety of nuclear installations is not currently part of the Community "acquis" (body of EU legislation), progress on this front directly impacted on the content and pace of negotiations since it is a crucial part of the pre-accession strategy and a stated priority for the Accession Partnerships.

For all those aspects of nuclear safety not covered by the Community "acquis", the best way to ensure a high level of nuclear safety is achieved and maintained by strengthening each State's nuclear regulatory bodies and associated institutions. These should be independent, sufficiently well-resourced and have a high level of technical competence and strong technical support.

The support traditionally provided through the Phare nuclear safety programmes spreads across a number of fields. The main areas have comprised assistance to nuclear safety authorities, technical safety of power reactors, radioactive waste management, the decommissioning of nuclear installations, radiation protection, and the control of fissile material. Since 2001, the programme underwent some re-orientation, compared to the earlier multi-country nuclear safety programmes of the 1990s that initially laid strong emphasis on the technical safety of power reactors, on-site assistance and safeguards of nuclear material. This reorientation puts particular emphasis on the need to support the institution building tasks of beneficiary countries to ensure independent and efficient nuclear safety authorities.

3. EVALUATION OF NUCLEAR SAFETY IN CANDIDATE COUNTRIES

New Member States need to fully adopt and implement the Community "acquis" established in the nuclear field, such as the European Atomic Energy Community's safeguards system or the regime on the supply of nuclear fuel. However, as outlined above, the safety of nuclear installations is not currently part of the "acquis".

In the round of EU accession negotiations recently concluded with the ten Accession States, the issue of nuclear safety for the first time figured on the negotiation agenda. By contrast, at the last accession of the nuclear operating countries Sweden and Finland this was simply not a topic. Among the reasons that can explain this situation is that during the 1990s, EU Member States' experts gained increasing insight into the nuclear safety situation in the candidate countries through their involvement in nuclear safety projects funded from the Phare as well Tacis financial instruments of the European Community. In this context, they became aware of a number of deviations from practices prevailing within the EU. These deviations successively had to be remedied. Additionally, the Chernobyl accident tarnished the reputation of reactors of Soviet design with lasting effects on the public mind.

In this complex negotiating process, where both technical and political issues had to be properly handled, the European Commission has played a key role, preparing positions to be endorsed by the EU Member States and ensuring proper interface between the candidate countries and the Union.

In line with the conclusions of the EU Council that repeatedly demanded that the candidate countries ensure "a high level of nuclear safety", the Council established a formal mandate to conduct a review of the nuclear safety situation in the candidate countries and elaborated, in June 2001, a Report on Nuclear Safety in the Context of Enlargement. This report has become the main guiding document for addressing this issue in the enlargement process. The methodology followed to evaluate nuclear safety in candidate countries consisted of comparing the practices and rules and regulations in force in candidate countries with those of the EU Member States. The European Commission made key contributions to this exercise. All twelve countries negotiating accession at the time accepted the recommendations contained in that Council Report. In June 2002, the subsequent Peer Review Status Report, elaborated, as it had been the previous report, by the Council's Atomic Questions Working Group of nuclear experts, recognised that all candidate countries were clearly committed to implementing these recommendations. All the acceding countries have continued to report on their measures to implement these recommendations and the Commission has been monitoring the whole process. On 5 November 2003 the Commission issued the Regular Reports for Bulgaria and Romania as well as the Monitoring Reports for the ten accession countries, which also cover the area of nuclear safety.

4. IMPLEMENTATION OF THE PHARE NUCLEAR SAFETY PROGRAMME

In general the Phare nuclear safety programme has focused on the following main priorities, which reflect the G7 strategy adopted in 1992 and, in the case of design and operational safety or reactors, the risk classification established by the IAEA:

- On site assistance and operational safety
- Design safety
- Regulatory authorities and their technical support organisations
- Waste management
- Off-site emergency preparedness.

Over more than a decade, since 1990, through the Phare nuclear safety programme, the Community has assisted countries of Central and Eastern Europe with around €220 million (this figure does not include the support for decommissioning). More than 300 projects have been funded covering design and operational safety, regulatory assistance, emergency preparedness, safeguards control, illicit traffic control and radioactive waste management.

The focus of the Phare nuclear safety programme has shifted from urgent measures on-site to institutional support to nuclear safety authorities and to other publicly funded bodies such as

radioactive waste management agencies. We have also moved away from planning and executing the programme in a centralised fashion, based on input from various nuclear safety advisory groups. Since 2001, the system of programming and project delivery is in line with the standard approach regarding all fields of the Community's pre-accession assistance – an approach that has increasingly involved the candidate countries in the decision-making process. Today, in most cases, the Accession States themselves already implement our nuclear safety programmes and will finalise the respective projects after their accession.

Present situation. Main Phare nuclear safety projects

At present there are more than 70 active projects covering the whole range of areas under the scope of the Phare nuclear safety programme, including a project to disseminate the results of the programme. An illustrative example of the assistance provided through Phare is the installation of the Diverse Second Shutdown System (DSS) at Unit 2 of the Ignalina Nuclear Power Plant (INPP) in Lithuania.

The need for a DSS has been identified as a high priority to improve nuclear safety at Ignalina 2 (a recommendation from the Safety Analysis Report Review Project, 1995-1997). In certain transients a failure to trip the reactor could lead to a severe accident. The main problem of the reactor protection system was the criterion of diversity.

The DSS is being implemented with the help of three Phare projects: (1) Supply and installation (main contract), (2) Project Management Unit support INPP, and (3) regulatory support to the Lithuanian Nuclear Safety Authority – VATESI.

To illustrate the potential impact of the Phare nuclear safety programme, the main active projects under the programme are attached to this document.

Outline of the 2003 Nuclear Safety Programme

The programme allocates financial assistance to a total of 16 projects. The total budget amounts to €11 million. These projects cover a variety of fields relevant to nuclear safety in acceding states and candidate countries.

Most projects pertain to the field of institution building, supporting either the nuclear safety authority or agencies entrusted with specific duties regarding radioactive waste management or similar tasks.

The 2003 programme takes into consideration subsequent developments, in particular the June 2001 Council Report on Nuclear Safety in the Context of Enlargement, the subsequent Peer Review Status Report of June 2002, as well as developments in the implementation of the nuclear safety programmes of the last few years. In this regard, the programme aims to provide support to the beneficiary countries particularly in addressing measures corresponding to the recommendations of the above-mentioned Council Report that was established as a key document in the context of the accession process.

The programme continues paying attention to the hazards to individuals, the public and the general environment present outside the realm of electric energy production. In effect, such areas of civil use of nuclear material other than the operation of nuclear power plants also experience repeated events of concern to human health (for instance, due to sealed radioactive sources used in industry and medical establishments). The delivery of Phare-funded Community assistance is therefore directing enhanced attention towards needs connected to ensure the safe management of nuclear waste. Beyond the scope of nuclear power, the 2003 programme pays attention to the needs of often under-resourced and sometimes newly established radioactive waste management

agencies that need to meet specific technical challenges with the support of technical know-how from EU Member States and/or Community financial assistance.

This programme – like last year’s – does not aim to provide direct support to technical safety improvements at nuclear power installations. At a time when future new Member States have adopted the “acquis” on the internal electricity market, it generally remains up to the commercially operating utility companies to implement safety-relevant measures from their own resources.

5. DECOMMISSIONING

In view of the high priority attached by the European Council to a high level of nuclear safety in candidate countries, and following discussions with the Commission, Bulgaria, Lithuania and Slovakia have undertaken commitments for early definitive closure of certain power units which were considered not to be upgradable at reasonable cost. Honouring this commitment, Bulgaria closed 2 VVER –440/230 type-reactors at the end of 2002.

In this context, it was at the initiative of the European Commission that the EBRD established three international grant Funds to support Bulgaria, Lithuania and Slovakia in their efforts to prepare the decommissioning of the Kozloduy 1-4, Ignalina, and Bohunice V1 power units. The European Commission chairs the Assemblies of Contributors of these funds. The European Community is the largest contributor to these funds; with a total contribution pledged to these Funds of approximately €500 million.

The Community support for the decommissioning of Ignalina NPP and Bohunice V1 will continue beyond accession as reflected in the “Ignalina Protocol” and “Bohunice Protocol” attached to the Act of Accession, where Lithuania and Slovakia reconfirmed their closure commitments. The budget allocated so far amounts to €285 million in the case of Lithuania and €90 million in the case of Slovakia.

6. MAIN ACHIEVEMENTS – IMPACT

The EU, together with its international partners, has made a significant contribution, mainly through the Phare programmes, to international efforts to improve nuclear safety in Central and Eastern European Countries.

Although improving nuclear safety levels in these countries is an ongoing and continuous process in which the countries concerned do of course have a prime role and responsibility, it can be pointed out that the EU’s assistance programmes have significantly contributed to:

- Strengthening independent regulatory authorities in Central and Eastern European Countries. This has been a major and highly valued achievement of the EU’s efforts to improve nuclear safety in the region. The numerous improvements funded by the Phare programme have allowed them to build up their technical competence and contribution to improving nuclear safety in their countries. The EU support has been primarily directed at:
 - ♦ transferring regulatory methodology including the formulation of legislation and regulatory documents;
 - ♦ providing support in conducting licensing assessments for specific plant improvement projects; and
 - ♦ supplying assistance in the overall safety assessments of specific installations.

The participation of Nuclear Safety Authorities in EU working groups and in particular the CONCERT Group, which involves regulators from the EU, NIS and candidate countries has also been a positive factor in strengthening Regulatory Bodies in the countries concerned.

- Strengthening the nuclear safety culture in the region, reflected notably by a more formal and regular dialogue between plant operators and regulators.
- Improving the level of design and operational safety, including the provision of equipment.
- Reaching agreements to close non-upgradable units in Lithuania, Slovakia and Bulgaria. Special Phare national programmes have provided financial assistance to support these decommissioning efforts and consequential measures in the energy sectors of the three countries.
- Addressing the problems of waste management, including treatment, storage and disposal of nuclear waste and spent fuel. Particular attention has been paid to the support of nascent radioactive waste management agencies.

Additionally, Euratom loans have been used to implement safety improvement programmes in Units 5 and 6 of Kozloduy NPP.

7. MAIN DIFFICULTIES – LESSONS LEARNT

On the Commission side, in the past the main problem in managing the Phare nuclear safety programme rested on the fact that the procedures and organisational structures in place, including the lack of sufficient human resources, did not allow for implementation of the programme at the desirable pace. That shortcoming has been essentially solved by implementing appropriate procedural and organisational changes. The Task Force for Nuclear Issues within the Enlargement Directorate General was created at the end of 2000 and suitable procedures and working routines are now in place. DG Enlargement in close co-operation with the candidate countries have reached a situation where projects can be implemented without delays according to the requirements established in the programming phase.

In general, the following difficulties with the implementation of the Phare nuclear safety programme can be mentioned.

- Shift of priorities over time. Given the delays mentioned above, a number of projects programmed several years ago to deal with priority issues identified at the time, later needed to be adapted to take into consideration the evolution of nuclear safety in the specific beneficiary country.
- Lack of administrative capacity in some beneficiary countries to define their nuclear safety needs and to provide input for the preparation of Terms of Reference.
- Limited absorption capacity in some beneficiary countries to properly process and absorb the know-how derived from the implementation of projects. They have reached a certain level of saturation. This is particularly true for the regulatory assistance. If the transfer of know-how is not sustainable, beneficiary organisations become dependent on assistance to perform their functions.
- In some cases in the area of regulatory assistance, EU organisations on their part also have experienced problems to deliver the required assistance due to their limited resources devoted to assistance activities. This situation is being aggravated by the fact that a number of EU regulatory organisations have decided to reduce their participation in activities related to

regulatory assistance. It can also be said here that some western organisations are overloaded with the implementation of projects.

8. THE WAY FORWARD

The 2003 Phare nuclear safety programme will be the last one for the ten Accession States, whilst Bulgaria and Romania will continue to have access to Phare-funded Community support also in the field of nuclear safety for some further time to come. As far as needed, the new Member States will be able to find support for strengthening their respective institutional capacities, including nuclear safety regulatory authorities and radioactive waste management agencies, from the Community's new "Transition Facility". This facility has been set up especially for this purpose and will be available for the 2004-2006 period.

The Phare programme will continue as a pre-accession instrument for Bulgaria and Romania with essentially the same orientations followed in the last few years, putting the emphasis on the need to continue strengthening the nuclear safety authorities, radioactive waste management agencies and other public organisations. The support to the decommissioning of certain units of Kozloduy NPP will continue.

9. SOME EUROPEAN WEBSITES OF INTEREST

EUROPA server (European institutions)

http://europa.eu.int/index_es.htm

Enlargement of the EU (DG ELARG)

<http://europa.eu.int/comm/enlargement/index.htm>

Contractual and financial aspects Tacis and Phare (DG AIDCO)

http://europa.eu.int/comm/europeaid/index_en.htm

Nuclear energy (DG TREN)

http://europa.eu.int/comm/energy/nuclear/index_en.html

Nuclear safety in central Europe and NIS (DG RELEX)

http://europa.eu.int/comm/external_relations/nuclear_safety/intro/

Council of the EU:

<http://register.consilium.eu.int/>

Main active Phare nuclear safety projects

Bulgaria

- Enhancement of safety assessment capabilities of the Bulgarian Nuclear Safety Authority (BNSA)
- Nuclear Safety Authority support to decommissioning
- Additional project in support to BNSA capabilities
- Phenomena investigation, development of SAMG
- Supply of equipment for characterisation of institutional radioactive waste and technical design for waste processing and storage facility
- Assistance to regulatory activities of the BNSA with regard to improving management of sealed radioactive sources

Czech Republic

- Bubbler Condenser (Co beneficiaries SK, HU)
- Support to SUJB – joint project with UJD
- Licensing-related accident analysis VVER 440/213, boron dilution
- Installation of RODOS
- Re-assessment of RPV internal stress
- Assessment and validation of VVER computer codes
- Solution for chamber closure at Richard repository
- Reconstruction of a hot cell at Richard repository
- Waste tracking information system
- Qualification of non-destructive testing and inspections
- VVER Cladded Reactor Pressure Vessel Integrity evaluation with respect to pressurised thermal shock events
- Upgrade of the testing facility for transport packages
- Closure of a chamber in the Richard repository for establishing a safety case
- Replacement and repair of equipment damaged by floods in 2002 in the UJV

Estonia

- Transfer of Western Regulatory Practices, ES/LV/PO/RA/01(1998). Co-beneficiaries: LT, PL
- Safe long-term storage of the Paldiski sarcophagi and related dismantling activities

Hungary

- RODOS, development of a prototype communications link
- Improvement of safeguards technology to enhance the efficiency of Nuclear Materials Accountancy and Control in Hungary
- Transfer of Regulatory Methodology and Practice to HAEA
- Technical advice to HAEA on ageing management
- TSO support in assessment of level 2 PSA for VVER 440/213
- Evaluation of waste retrieval & disposal at Püspöckzilágy facility
- Hydrogen Management for the VVER-440/213 Containment
- Development of the APROS Nuclear Plant Analyser
- Providing free storage/disposal at Püspöckzilágy repository

- Implementation of mass spectrometry for the analysis of nuclear material of unknown origin and environmental samples

Latvia

- Transfer of Western Regulatory Practices
- Design of additional waste disposal vault and integral storage facility for LLW at Baldone
- Improvement of radiation protection in relation to medical exposure
- Phare NS Programme. Relevant projects
- Enhancement of Regulatory Capacity for Radiation and Nuclear Safety Infrastructure

Lithuania

- Management support to the INPP, DSS project
- TSO support to VATESI, DSS project
- Installation of a DSS in INPP Unit 2
- Transfer of western regulatory methodology and practices to VATESI
- TSO licensing capability - core integrity, I&C, equipment ageing
- Support to VATESI during the review of SAR 2 for INPP Unit 2
- Support to VATESI in structural dynamics INPP
- Support to VATESI in licensing decommissioning activities
- Safety assessment and upgrading of the Maisiagala repository

Poland

- Transfer of Western regulatory practices
- Remediation of the area surrounding the tailings pond at Kowary
- Improvement of storage conditions and closure of Rozan repository
- Development of technology and procurement of equipment for encapsulation spent fuel
- Creation of a central monitoring and radiation safety at Swierk nuclear centre
- Reduction of occupational exposure and radioactive waste arising from operation of the Maria research reactor through actions taken at the source

Romania

- Transfer Western regulatory methodology and Practices to CNCAN
- Support to CNCAN, seismic evaluation Cernavoda
- Early warning system - Cernavoda
- Operational risk, Cernavoda
- Regulatory regime consolidation, support to CNCAN
- Support to CNCAN, review of fire protection, overpressure protection of reactor primary circuit and of main steam line design safety issues in Cernavoda-1
- PSAR for the LL radioactive waste repository Baita Bihor

Slovakia

- Support to UJD - joint project with SUJB
- Decontamination of NPP A-1 primary circuit

Slovenia

- Transfer Western regulatory methodology and practices
- RODOS, installation

- Seismic monitoring station, Krško basin
- Support to SNSA in upgrading and modernisation of the National Early Warning System
- “Hot-cells” facility renovation and modernisation
- Characterisation of radioactive waste in a central store in a central facility