

THE ROLE OF CASSIOPEE IN DEVELOPING RADIOACTIVE WASTE MANAGEMENT STRATEGIES IN THE STATES OF THE NIS AND CENTRAL AND EASTERN EUROPE

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ABSTRACT

Since the break up of the Soviet Union, economic and political changes in the Newly Independent States and the countries of Central and Eastern Europe (the beneficiary countries) have, in turn, inspired changes in the management of nuclear power related activities, including radwaste management, bringing them more in line with accepted “western” practices.

The European Union (EU) has provided financial incentives to these countries through its assistance programmes (Phare and Tacis). In total some ECU 30 million (US\$ 34 million) has been provided on radwaste management activities since 1989, out of a total spend of ECU 650 million (US\$ 735 million) on nuclear safety. An initial success of Cassiopee was to persuade the respective financial authorities that radwaste problems were as equally important as other nuclear safety issues and that not to divert some resource to addressing them would only be storing up bigger problems for the future.

In 1993 the European Commission encouraged the creation of Cassiopee, a consortium of EU national radwaste agencies comprising ANDRA (France), COVRA (The Netherlands), DBE (Germany), ENRESA (Spain), Nirex (UK), ONDRAF/NIRAS (Belgium). The consortium combines the individual members’ competences and capabilities and provides assistance and advice through the EU programmes to the beneficiary countries in two main ways:

- Developing national radwaste management strategies;
- Advising on the implementation of engineering projects.

As a first step in providing assistance, during 1993-94, Cassiopee undertook studies of radwaste management practices in Bulgaria, Czech Republic, Hungary, Lithuania, Poland, Romania and Slovakia; the studies were extended to cover Slovenia in 1997 and Latvia in 1998. These studies identified the radwaste management priorities in those countries and provided specific recommendations, which in turn have led to specific projects being undertaken, particularly as regards the technical, legal and institutional aspects.

One of Cassiopee’s main roles is, with the co-operation of the authorities in the beneficiary countries, to draw up terms of reference for specific projects, carry out technical reviews and undertake specific projects where appropriate. The terms of reference work has included Uranium mining and milling site remediation, decommissioning of Soviet Designed Research Reactors, Eastern European regional L/ILW disposal methodology, waste acceptance criteria for

near surface repositories, closing of the Rozan repository in Poland, decommissioning of Bohunice A1 reactor in Slovakia and Ignalina NPP in Lithuania.

The main projects Cassiopee itself has undertaken include: advising on radwaste management and financing in Bulgaria, establishing the National Czech radwaste management agency (RAWRA), providing an inventory of radwaste and spent fuel in the Kola Peninsula, improving the safety of radwaste management in NW Russia, repository site selection in Hungary and Ukraine, and a scheme for radwaste management in Ukraine.

The success of Cassiopee in providing assistance to the beneficiary countries is based on an approach involving working in partnership with them and the EU. In looking ahead Cassiopee is continuing its work with the EU and the beneficiary countries and has established good working relations with the three new radwaste agencies of Czech Republic (RAWRA), Slovenia (Agencia RAO) and Hungary (PURAM).

INTRODUCTION

The European Union provides important technical support to Russia and other countries of Central and Eastern Europe, assisting them with their transition to market economies and democratic societies. These programs, which started in the early 1990's, are essentially based on transfer of knowledge and expertise, and cover public administration, enterprise, health, education, agriculture, banking, transport, telecommunications, energy, nuclear safety and environment. An aspect of the nuclear safety and environment sectors which requires particular attention is the management of radioactive waste. The Tacis and Phare assistance programs provide a real opportunity to encourage and facilitate the assessment of radwaste management practised in these countries, the definition of improvement actions and their implementation.

CASSIOPEE

Cassiopee is a European Economic Interest Group comprising ANDRA (France), COVRA (The Netherlands), DBE (Germany), ENRESA (Spain), Nirex (UK), ONDRAF/NIRAS (Belgium). The Grouping was created in February 1993 at the initiative of the European Commission in order to assist East European countries to develop own radwaste management systems, within the framework of the EU's assistance programs (Tacis and Phare).

The main asset of Cassiopee is its highly qualified expertise in all aspects of radwaste management: highly varied expertise gained in the individual organisations forming Cassiopee. Indeed, differences in national nuclear programs and policies mean that each organisation has a unique status and role, as illustrated in Table 1.

Table 1: Competences of Cassiopee Members

Member	Transport	Treatment	Storage	Final Disposal	Repository Operation	Decommissioning	R&D
ANDRA (Fr)	√	√		√(L/I/HLW)	√		√
COVRA (NL)	√	√	√	√(L/I/HLW)			
ENRESA (SP)	√	√	√	√(L/I/HLW)	√	√	√
DBE (D)				√(L/I/HLW)	√		√
Nirex (UK)	√			√(L/ILW)			√
ONDRAF (BE)	√	√	√	√(L/I/HLW)		√	√

ASSISTANCE

Although each member organisation has individual capabilities and experience in specific aspects of radwaste management, an internal working rule states: “Cassiopee will always appear as a neutral and non-profit EU organisation, promoting an EU approach to problems, and in which any company - or national - particular interest should be banished”. Cassiopee's role in the EU assistance programs is mainly advisory: typically, working with the nuclear authorities of the country concerned, to analyse the radwaste management situation, assist in identifying priorities and solutions, and prepare terms of reference for their implementation.

During its six years of existence, Cassiopee has developed several projects in the Eastern countries. Its first assignment in 1993-94 was to analyse the situation regarding the production and the management of radwaste in the countries of Central and Eastern Europe: Bulgaria, Czech Republic, Hungary, Lithuania, Poland, Romania and Slovakia; the studies were extended to cover Slovenia in 1997 and Latvia in 1998. These studies identified the radwaste management priorities in those countries and provided specific recommendations, which in turn have led to specific projects being undertaken, particularly as regards the technical, legal and institutional aspects. This first study has been an important reference for related further development of the Phare program and on the basis of the priorities identified, the European Commission launched many new projects.

A similar approach was followed for the Kola Peninsula in Northwest Russia. In 1995, Cassiopee was awarded a contract to establish an inventory of the radwaste and spent fuel in the region, the

objective being in a further step to develop a regional waste management scheme. Based on Cassiopee's findings, the situation of radwaste management and disposal in Northwest Russia was identified as high priority requiring urgent improvements. Therefore, the European Commission in 1997 launched a Tacis project: "Improvement of the safety of radioactive waste management in the Northwest region of Russia". In addition, several multinational co-operative ventures were set-up to resolve the most urgent tasks.

Cassiopee's other main assistance projects have been:

- the 1995-96 project "Management of radioactive waste in the Moscow region", which addressed the management of radwaste produced in the medical and industrial sectors at the Moscow Radon Centre;
- the 1996 project "Assistance in site selection for the disposal of radioactive waste in Ukraine";
- the 1996-97 project "Radioactive waste management in Bulgaria";
- the 1997-98 project "Technical Assistance to the Czech Republic in establishing the Radioactive Waste Management Authority".

The last two projects are discussed further below.

INSTITUTIONAL ARRANGEMENTS

Cassiopee is particularly experienced in addressing the issues regarding creation and functioning of a radwaste management organisation. This expertise is valuable to the Eastern countries, which originally had no dedicated radwaste management organisations, the responsibilities being traditionally concentrated in the individual waste producers, as indicated in Fig. 1.

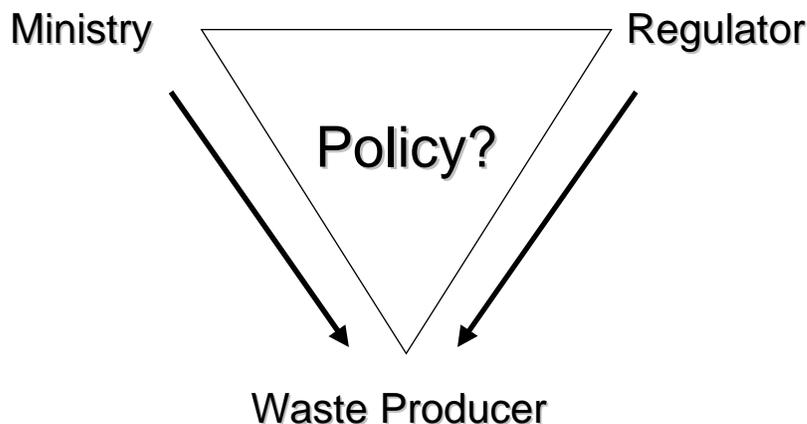


Figure 1: Structural schemes in Eastern Europe

The structure now prevailing in Western Europe, and which Cassiopee promotes, is presented in Fig. 2. It is based on the IAEA guidance on radwaste management and is sometimes referred to as the “classical triangle”. The guidance distinguishes between the roles of the regulator, the waste producer and the waste disposer. The waste disposer is to be responsible for developing and implementing an integrated national strategy under a firm government policy. The waste producer is to finance radwaste disposal, in accordance with the “polluter pays” principle. Such separation is important to avoid conflict of interest: the Regulator must be independent of those that are regulated; the Waste Producer primary motivation may not be environmental as should be the case with the Waste Management Organisation.

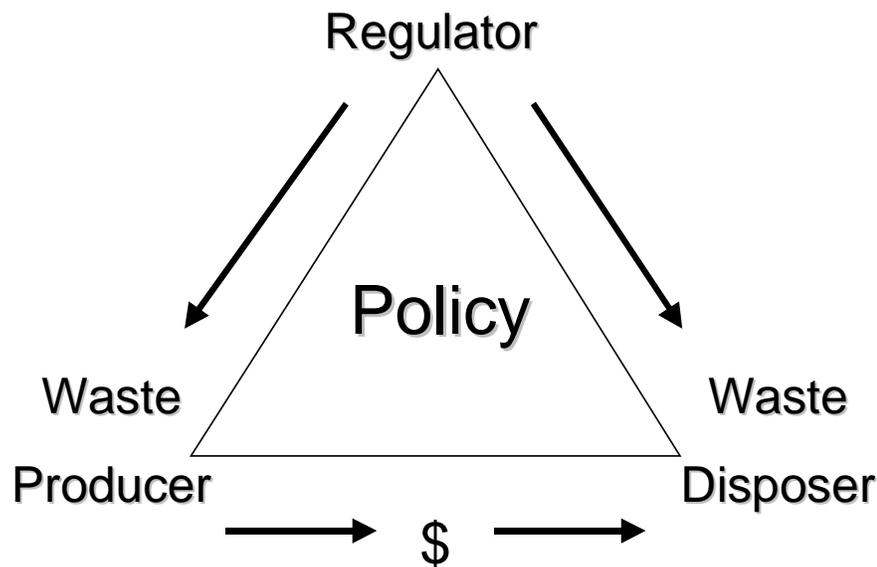


Figure 2: Structural schemes in Western Europe

International models of institutional arrangements typically follow the principles set out above. In practical terms, the radioactive waste management organisation faces regulatory and cost pressures from the regulator and waste producers respectively, giving it an incentive to find not only safe but also cost-efficient solutions.

Examples of the “classical triangle” approach can be found in the European Union. However, at a working level (below the framework of the classic triangle) certain differences are apparent, particularly with respect to:

- Treatment and conditioning;
- Transport; and
- Storage and disposal policy.

It should be emphasised that the precise arrangements never stray far from the IAEA principles outlined above but do differ in their detail, to reflect national differences in economic, social,

political, legal, institutional and geographic structures. This is highlighted amongst the Cassiopee membership itself as referred to above.

“RADIOACTIVE WASTE MANAGEMENT IN BULGARIA”

The Bulgarian project reviewed the position of radwaste management in Bulgaria and made conclusions and recommendations regarding the existing Novi Han near-surface disposal facility, wastes arising from NPP Kozloduy and the development of a new national disposal facility. The work was led by Cassiopee and carried out in partnership with AEA Technology (UK), SGN (France), Risk Engineering (Bulgaria) and Price Waterhouse (London and Bulgaria). Importantly, the project also addressed the financial and organisational infrastructure and how a new Waste Management Organisation could fit within the institutional framework as it then existed.

Financing of radwaste disposal and decommissioning was also addressed. It is important to recognise that the conclusions and recommendations from this project were based on “round table” discussions chaired by the (then) Ministry of Energy and Energy Resources with participation from all interested parties in Bulgaria. Moreover, Cassiopee’s prime concern was that any recommendations made from the project should be “sympathetic” to the Bulgarian situation.

THE CZECH PROJECT EXPERIENCE

As in a number of other countries of Central and Eastern Europe, economical and political changes in the Czech Republic initiated the process of harmonisation of the national legislative environment with that of the EU countries. In the nuclear field the new Law on Peaceful Utilisation of Nuclear Energy and Ionising Radiation (the Atomic Act) was enacted in January 1997.

The Law included the basic provisions for radioactive waste management. It simplified the organisational scheme of radioactive waste management with the Ministry of Trade and Industry and in June 1997 the Radioactive Waste Repository Authority (RAWRA) was established as the body responsible for disposal of radioactive wastes and spent fuel.

RAWRA is regulated by the State supervising bodies (State Office for Nuclear Safety, Czech Mining Office, Czech Inspection of the Environment, etc). Its Board of 11 independent members is appointed by the Minister of Industry and Trade; waste producers and the general public are represented by four members each and remaining three posts are assigned to representatives of the Ministries of Finance, Environment, and Industry and Trade.

RAWRA has the following main responsibilities:

- siting, development, construction, operation, closure and monitoring of radioactive waste repositories;
- conditioning of spent fuel before its final disposal;
- inventory data collection;
- co-ordination of R&D programmes;
- administration of and proposing levies to the nuclear account;

- auditing reserves for the decommissioning fund.

Regarding the divisions of responsibilities between the State and the waste producers, the most important decision was that the State would guarantee the safe final disposal of all radioactive waste and spent fuel.

As the Czech legal system does not recognise a public profit organisation, the Agency became a part of the State administration under the control of the Government. The “polluter pays” principle and the establishment of a radioactive waste fund ensures the financing of the Agency’s activities. The fund is a part of the state budget and can be used only for activities under the Act and is held as a separate account at the Czech National Bank.

In April 1996, the Ministry of Industry and Trade requested assistance from the European Commission’s Phare Programme to help in setting up RAWRA. The Commission in turn asked Cassiopee to implement the project and the contract was signed in November 1996. The Czech Ministry of Industry and Trade was the main Beneficiary, and ENRESA acted within Cassiopee as the lead company, while all the other members of Cassiopee participated to a greater or lesser extent. The Nuclear Research Institute at Rez (NRI) participated as the local subcontractor.

The project is a good example of how one specific to an individual country can also serve to act with a regional dimension, as the experience is also valid for all the remaining Phare countries.

The project had four phases:

1. to provide reference information concerning policy, legal and institutional frameworks, financing systems;
2. to assist in the preparation of RAWRA basic documents and regulations, carried out in close collaboration with all parties. The main role of Cassiopee was to transfer the EU Agencies experience to RAWRA. At the end of this phase a two-day technical seminar was held in Prague for all co-beneficiary countries;
3. to propose an organisational structure for RAWRA, including the specification of requirements for the agency's management team and staff qualifications for recruiting the basic personnel for the first period of operation;
4. to assist the managerial staff of RAWRA in developing and implementing its plans of initial activities and specifying the corporate management systems. During this phase RAWRA management teams visited all Cassiopee agencies in order to obtain a more direct and deeper knowledge of their systems.

MORE AGENCIES?

A new public agency for radwaste management is now operational in Hungary (PURAM), adding to the one already in existence in Slovenia (Agencia RAO) and we believe similar organisations are planned in Bulgaria, Latvia, Lithuania and Poland. Moreover, on financial aspects, a special fund to cover the long-term expenses of radwaste disposal and decommissioning have been set up in Romania and Slovakia; Bulgaria will establish similar funds in 1999.

THE FUTURE

Cassiopee has developed a great deal of experience working with the European Commission and the Governments of Central and Eastern Europe, and has established a real relationship with key organisations in almost all of the countries. The first step of the overall objective was to assess the situation and identify priorities in these countries and this has been achieved. The second step, to improve the situation, is now well advanced in some countries.

In line with the EU plans, Cassiopee's ultimate objective is to move from assistance relationships to real partnerships with the beneficiary countries in order to address together the important issues of radwaste management, such as:

- harmonisation of clearance levels;
- trans-frontier shipments of radwaste;
- partitioning and transmutation;
- spent fuel management;
- dealing with excess plutonium;
- development of (common) solutions for deep geological disposal;
- develop co-ordinated approaches to R&D.

This objective, which could have appeared Utopian a few years ago, is now considered to be very realistic.