Overview of National Laws in Relation to a Regional Repository: Legal and other Non-technical Aspects of Multinational Repositories

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1. Introduction

Numerous non-technical considerations, such as politics, economics, ethics and environmental concerns, influence the legal framework for implementing disposal of radioactive wastes. Such considerations are at the base of any legislation and are reflected in national laws and in international legislation. Some of these aspects are of special significance in relation to legislation on multinational repositories, and therefore also have to be taken into consideration when discussing the legal framework. For this reason, the subtitle “Legal and other Non-technical Aspects of Multinational Repositories” is added to the title of this presentation and Part 2 is devoted to them.

In Part 3, I describe some issues of national legislation concerning multinational repositories, but also touch upon international legal instruments. These have a strong impact on or are even part of many national legislations. In addition, I finally briefly mention some current initiatives for multinational repositories. These also influence national legislation on multinational repositories.

First, some notes on terminology. The title uses the term “regional” repositories. In a strict sense, regional repositories are repositories for radioactive waste (RAW) used by several countries situated in the same region of the world. The similar term “multinational” repository would be used simply for repositories used by several countries without reference to the location of the user countries. “International” or also “supranational” repositories are terms often used for multinational or regional repositories that are supervised by a supranational organisation. For legal issues however these differentiations are irrelevant. Therefore I will use the term “multinational” repository, and hereby include all of them.

The term radioactive waste (RAW) as used here comprises in general all civilian radioactive material for which no further use is foreseen. It includes spent nuclear fuel (SNF), if there is no intention to reprocess this.
2. Non-technical Requirements on Repositories for Radioactive Waste; Key Challenges

2.1. Requirements on both national and multinational repositories

As we all know, nuclear energy is a controversial political issue in many countries, much more than any other source of energy. Maybe due to the bombings of Hiroshima and Nagasaki or nuclear weapons in general, maybe due to the deliberate policy making of certain pressure groups, there is a widespread irrational fear of nuclear energy and the technology and infrastructure that surround it. Even although it is broadly accepted that, from a technical viewpoint, nuclear energy can be managed safely and that there is no adequate replacement of nuclear energy in many countries, many people are still unwilling either to trust the nuclear industry or to conserve energy; but they still want to have a say in many fields concerning nuclear energy. This often comes to the fore when proposals are made for the disposal of RAW. Therefore the societal and political processes leading to legislation and even to authorisations are a very important factor in all fields regarding nuclear energy.

As one of the consequences, various principles and standards governing RAW disposal have been developed in different countries and internationally. Some are obvious and universally agreed to; others are more debatable. Thus it is commonly agreed to and regarded as a minimum standard that repositories for RAW must be ethical, environmentally sound, safe, secure and economic. These agreed standards are fundamental to legislation on multinational repositories. For these characteristics to be achieved some specific conditions must be fulfilled [1]:

- Ethical: There is no question that a repository for RAW must be sited and operated on the basis of ethical principles. However, the term “ethical” is probably the one that is the most controversial and the one that is interpreted most diversely by different individuals, organisations and countries. Several factors are involved:
  - There is the common belief that disposal of RAW should be dealt with now rather than left for future generations.
It is widely agreed that each country has the responsibility to ensure that its wastes are managed in a safe and environmentally sound manner.

Taking responsibility for the correct disposal of one’s RAW means adopting a clearly safe solution for mankind and environment. Meeting the responsibility does not necessarily mean disposing of the RAW within one’s own territory. In many cases however, there is a tendency to aim for this in order to ensure that the required standards are met – this tendency may result from fear that earlier bad examples of dumping hazardous wastes abroad in unsuitable places might be repeated.

For RAW, however, ensuring proper standards for transboundary shipments is not a problem, since there exist legal bases that prescribe exact conditions and requirements to be met. For example, Art. 27 of the Joint Convention and the EURATOM Council Directive 92/3 on transfers prescribe the conditions under which RAW may be exported to or imported from another country. I will come back to these legal instruments in more detail later.

As there is no ethical – and as a consequence no (international) legal – obligation to dispose of RAW in the state of its origin only, properly implemented multinational repositories are certainly "ethically responsible". Cf. also [2]

- Another principle of ethics is that no region should be forced against its will to host a repository for RAW. Even in purely national repository programmes, this goal is very hard to fulfil, given the strong local political opposition generally encountered in repository siting projects. In some countries, therefore a national government may formally impose a solution. For multinational concepts, however, national and local acceptance is an absolute pre-requisite.

- As the last item of ethics it should be mentioned that no advantage may be taken of politically weak and / or less developed and / or poor areas. It is not ethical to offer large sums of money as compensation to a poor and / or less developed area that is not technically suitable for hosting a safe repository. Nevertheless, fair compensation for accepting the responsibility should be offered to any hosting area and community.
Finally, it is worth recognising, that some countries apply policies (as opposed to laws) against multinational disposal concepts and justify these by arguments of ethical responsibility. But, in practice, the policies often reflect instead a pragmatic reaction to the concern that multinational initiatives might disrupt national repository planning. Examples are Sweden, France and the UK.

- **Environmentally sound**: The net environmental impact should be positive, with global, national or local benefits being sufficient to outweigh any localized potentially negative effects.

- **Safe**: The public and the environment must be protected from harmful effects of radiation.

- **Secure**: The term security is used in connection with potential misuse of the radioactive materials for illegal actions (by terrorists, rogue states), which clearly has to be avoided.

- **Economic**: While meeting all the above-mentioned conditions, a repository for radioactive waste should be as economic as possible. If it costs too much, it is simply not realizable. Multinational repositories can ease the burden of costs as these may be shared and as there are clear economies of scale.

### 2.2. Additional legal requirements on multinational repositories

All the standards to be met and the problems to be solved that were mentioned above, apply while implementing any repository for radioactive waste. A multinational repository for radioactive waste, however, may encounter several problems and challenges in addition to those experienced in purely national repository projects. Some of these additional challenges in the field of legislation are listed here:

- The applicable laws in connection with multinational repositories in the host country and in the potential user countries have to be made compatible;

- The legal form of a company or joint venture in charge of a repository has to be defined;
- The sharing liabilities (e.g. potential remediation costs) and benefits (e.g. the potential value of spent fuel as an energy source) must be regulated;

- A further important challenge is the enforcement of internationally agreed law (which is in general based on voluntary participation and application).

3. The Legal Framework for Multinational Repositories

3.1. Legal instruments and laws in general

The nuclear community agrees that repositories for radioactive waste – whether national or multinational – are technically feasible with today’s technology and can fulfil the commonly agreed safety and other technical requirements. Experience, however, has shown that political and sociological opposition present large obstacles on the way to implementing repositories for RAW – national and international. These political and sociological opinions have an enormous impact on the laws governing disposal of RAW and on their application in practice. Laws are, in a way, a mirror of public attitudes towards a certain issue, although due to the usually long duration of the law making process they often lag behind the current situation. Yet laws are not made forever and as public opinion or needs change, they may be amended and adapted. This gives hope that amendments may eventually make multinational repositories possible, even in countries that currently have different legislations.

3.2. National laws

In practice, every country using radioactivity for civil purposes has established laws and a legal system covering disposal of the RAW. Many of them prescribe that disposal of their RAW has to take place in their own country. Some legislations, but not all, also contain a set of laws, or specific articles in laws, dealing with aspects of multinational, shared repositories and the country’s approach to participation therein. Other countries do not explicitly treat the issue of multinational repositories in their legislation. But from the fact, that they permit in their laws export of their RAW, it may be concluded that they leave the in-
ternational option open, i.e. that they indirectly could allow participation in a multinational repository.

As there are separate papers and presentations on international monitoring, on packaging, on transport and on liability and insurance laws for international shipping of SNF, I restrict myself here to the questions of whether a country allows export and/or import of RAW. These issues are crucial and decisive for a country’s position towards multinational repositories. If export of RAW is prohibited, participation in a multinational repository is out of the question. If import of RAW is not allowed, this country cannot be a host country of a multinational repository – at least not under its present legal situation.

Table 1 (attached at the end of this paper, cf. also table 4 on pages 90,91 of [3]) gives a summary of some countries’ answers to these questions and – where available – of their attitudes and/or policies regarding multinational disposal of RAW.

Before looking closer into legislation, I would like to mention the fact, that looking at an isolated article or law can give an incomplete or wrong picture. Articles and Sections of laws and laws themselves are always part of a whole system and this system or framework has to be considered too. Let me give you an example: the term RAW. It is used in many laws. What do you think RAW means? Is SNF included in RAW? This question may not be fully answered with a simple yes or no. It has to be given the typical answer of lawyers: it depends. It depends on the fuel cycle policy of a country and on the waste disposal system it has chosen as a consequence. As you all know, some countries, after having removed the fuel elements from their reactors, will not use these further. The fuel is considered as RAW and has to be disposed of. In these countries RAW includes SNF. Other countries consider spent fuel as valuable resource that may be reprocessed. Therefore SNF is considered as usable raw material and not as waste. Their RAW will not include SNF, but rather substances, such as vitrified HLW and technological wastes from reprocessing. With this example I wanted to demonstrate, that, when comparing laws of different countries, care has to be applied and the overall framework of the particular laws has to be considered too.

Countries that treat the issue of multinational repositories in their legislation do this in a variety of ways. The range extends from prohibiting multinational solutions completely to prescribing them as a goal in the legislation.
In more detail, many nations prescribe in their laws that a national solution has to be found for their RAW, i.e. a repository within the own country. Hereby some states very strictly demand an internal solution only and prohibit consideration of multinational options. Others take a broader approach in that they follow a "dual track policy" in the sense that they look for a national solution but also consider multinational options. A third type of countries even prescribes explicitly in their legislation, that multinational solutions may or even must be considered.

An example of a country with strict laws against multinational solutions is Finland. Finland clearly prohibits any import and export of its RAW. Examples of different approaches are Switzerland and Austria. Switzerland lays out fair, symmetrical conditions for import and export of RAW. Austria explicitly obliges its authorities to consider co-operation with other Member States of the EU and other countries that have ratified the Joint Convention. The Austrian law also explicitly states the reasons for co-operation: balance of risks, optimisation of radiation protection, and minimisation of costs. Austria may be cited as a typical example of a country with little RAW - so little that the costs of a national repository would bear no sensible relationship to the amount of RAW to be disposed of. Examples of countries with legislation or official documentation indicating that they are following a dual-track-policy, are Belgium, Bulgaria, Czech Republic, Hungary, Germany, Lithuania, the Netherlands, Slovakia, Slovenia and Switzerland.

Other countries have not yet decided, which path they will follow, or have a national repository R&D programme, but have not yet taken a clear decision for or against participation in a multinational repository. Examples are Croatia and Spain.

Given the fact that a great number of countries recognize the advantages of multinational repositories, it is interesting – but disappointing – to see that import of RAW for disposal is currently prohibited in most countries.

In general, export of RAW needs an authorisation that may be granted only with restricting conditions being applied. Quite often these restrictions refer to international legislation such as the Joint Convention and Council Directive 92/3 (both discussed in detail below). This is one point where international legislation comes into play.

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1 § 34 Kernenergiegesetz of 21 March 2003, entered into force on 1 February 2005
2 § 36b section 2 Strahlenschutzgesetz, amendment entered into force in December 2004
As mentioned above, in the field of RAW disposal, politics and policies play an extremely important role. For example, the decision on the fulfilment of the conditions on import and export of RAW is in reality a question of policy rather than of law. Therefore an overview on the legal situation could not be complete without a glance at some policy or political statements.

Here are some examples:
- The UK has left open the question of whether their RAW may be exported and has agreed to accept foreign wastes for disposal under an equivalence principle, but the implementing organisation in the UK (not the government however) has expressed strong views against multinational repositories.
- In Sweden and France, whose legislations allow export (and for Sweden also import under certain conditions), apply policies (but not laws) against multinational disposal concepts.
- In Australia, one State (WA) has passed a law against import of foreign wastes but the national government – despite having a strong policy against import – did not consider that a specific Federal law was required to block this.
- Some countries (e.g. Czech Republic, Lithuania, Slovenia) have official governmental policy documents that encourage the waste agency to study the possibility of multinational disposal.
- The USA is not considering import or export of commercial spent fuel, but it has repatriated research reactor fuels. Also, government officials are on record as supporting the concept of small countries collaborating to implement multinational repositories.
- Russia took back fuel from the FSU, is taking back research reactor fuels and is the only country today which is officially interested in the possibility of hosting a multinational storage (and perhaps disposal) facility.

3.3. Legal instruments at the international level

International legislation plays an important role in promoting international collaboration, including initiatives in the field of RAW management. Such international legal instruments directly affect national laws as well as concepts for multinational repositories. Therefore a selection of the most relevant conventions, treaties and laws in this field is mentioned below. The description is restricted to those aspects most relevant to multinational repositories for RAW.

The core provisions of the Joint Convention oblige the parties to observe the general safety requirements.

The Joint Convention further imposes obligations on the contracting parties in relation to the transboundary movement of spent fuel and radioactive waste. These are contained in its Art.27. They require an authorisation by the country of origin of the RAW to be transported and the approval of the state of destination. Further, shipments of RAW may not be authorised to a destination south of latitude 60° south (Antarctica) and to a country which does not have the technical, legal or administrative resources to manage the RAW safely. In addition it obliges the countries of dispatch, in case a shipment of RAW cannot be completed, to take the RAW back.

The legally binding part of the Joint Convention does not contain any provisions on multinational repositories. However, its preamble states that RAW should, as far as it is compatible with the safety of the management of such material, be disposed of in the State in which it was generated. At the same time it recognises that in certain circumstances safe and efficient management of SNF and RAW might be fostered through agreements among contracting parties to use facilities in one of them for the benefit of the other parties.

As the Joint Convention imposes the enactment of legislation regarding management of RAW / SNF, as well as prescribing its content, it directly influences national laws on disposal of RAW and therefore multinational repositories. If only one of the partners of a multinational repository is party to the Joint Convention, the latter will directly influence and determine the legal rules of that repository.

• **Code of Practice on the International Transboundary Movement of Radioactive Waste** (short: Code of Practice)

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4 This ban is based on Art. V 1. Of the Antarctic Treaty of 1 Dec.1959 (Any nuclear explosions in Antarctica and the disposal there of radioactive waste material shall be prohibited.)
The main parts of the Code of Practice have been taken over by Art. 27 of the Joint Convention. In other points it goes beyond the prescriptions of the Joint convention. These points remain in force as recommendations and serve as assistance in interpreting the Joint Convention.


  The Council Directive re. transfers applies to shipments of RAW between Member States of the EU as well as into and out of the EU. Its prescriptions regarding transport are basically identical to those of Art.27 of the Joint Convention. The Council Directive re. transfers is applicable to all EU Member States.

- **Convention on Environmental Impact Assessment in a Transboundary Context** (short: Espoo / EIA Convention) 

  The Espoo / EIA Convention stipulates the obligation of the parties to assess environmental impact of certain activities at an early stage of planning and to notify and consult each other on all major projects under consideration that are likely to have a significant adverse environmental impact across boundaries. It also prescribes the procedural steps to follow when realising a project subject to the convention. Installations for storage or disposal of RAW are subject to this convention.

- **Euratom Proposal for a council directive (EURATOM) on the management of spent fuel and radioactive waste** (short: Euratom Proposal or Nuclear Package) 

  In late 2002, the EC developed a draft Waste Directive aiming to bring about progress towards safe long-term management of SNF and RAW. Some of the most important general points contained in the original proposal were:

  - Each Member State was required to establish a clearly defined programme on long-term management and disposal of RAW with a definite timetable for each step.

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- The programme could include shipments of RAW and/or SNF to another Member State or third country if such shipments are fully in compliance with existing EU legislation and meet further standards.
- Disposal in stable geological formations (granite, salt, clay) was acknowledged to be considered as the safest and most sustainable solution for the management of high-level and long-lived RAW.
- A very ambitious timescale for development of appropriate disposal site(s) was foreseen.

Objections against the Euratom Proposal were raised by many stakeholders. They objected to the overly ambitious timescales, some to the encouragement given for regional solutions and a few – primarily the UK – objected to the identification of geological disposal as the preferred long-term solution. As a result, the text was amended and demoted to a non-binding resolution. However efforts are still underway at the EC to develop a Waste Directive – and the latest drafts continue to acknowledge the potential benefits of regional repositories.

Table 2 (at the end of this paper, cf. also table 1, page 86 of [3]) gives an overview of some countries and their status of ratification of the international legislation mentioned above.

3.4. Current initiatives for multinational disposal

In spite of the existing – mainly political – barriers there is increasing support at the international level for multinational repositories. Over the years, there have been numerous proposals published for multinational repository or storage schemes and several initiatives and projects have been launched. Some selected topical examples are mentioned here:

- **IAEA MNA**, Expert Group on Multilateral Nuclear Approaches. This expert group has been established by IAEA as part of efforts to prevent the spread of nuclear weapons. It focuses on security issues of proliferation-sensitive parts of the nuclear fuel cycle. Among other approaches it is considering for the back end of the nuclear fuel cycle are multilateral approaches to the management and dis-
For further information see the dedicated IAEA website:
http://www.iaea.org/NewsCenter/Focus/FuelCycle/index.shtml

- **ARIUS**, Association for Regional and International Underground Storage.
  Arius was set up in Switzerland by waste management organisations from several countries as a non-commercial body to promote the concept of multinational facilities for storage and disposal of all types of long-lived nuclear wastes.

Further information is provided on its web site: www.arius-world.org

- **SAPIERR**, Support action, pilot initiative for European regional repositories [3].
  SAPPIER is a project within the 6th framework programme of the EU, which is designed to explore the feasibility of regional repositories in the EU. The SAPIERR project has compiled information on the legal situation with respect to a European regional repository.

The project is further described on its web site: www.sapierr.net

- **Euratom Proposal**: Euratom Proposal for a council directive (EURATOM) on the management of spent fuel and radioactive waste (mentioned above and [8], [9]).
  The proposal has launched a broad discussion on – among other topics – multinational repositories, but unfortunately yielded a non-binding resolution only. Neverthe-

less, it led to acknowledgement of multinational repositories.

- **IAEA – Russia Initiatives**
  The Director General of the IAEA and the responsible Russian minister recently agreed that a special conference on the possibility of a Russian multinational repository would be held in 2005. This will take place in July of this year.

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9 The group consists of 23 experts drawn form as many countries and is chaired by Mr. Bruno Pel-laud, former IAEA Deputy Director General and Head of the Department of Safeguards. The group has released its findings on February 22, 2005 in its report “Multilateral Approaches to the Nuclear Fuel Cycle”, [10]

10 The eight Organisational Members of Arius are (June 2005): Kozloduy NPP Bulgaria, PURAM Hungary, ENEA Italy, Obayashi Corp. Japan, Radiation Safety Centre Latvia, COVRA Netherlands, ARAO Slovenia and Colenco Power Engineering Switzerland.

11 The following 14 countries are participating in the SAPIERR working group: Austria, Belgium, Bulgaria, Croatia, Czech Republic, Hungary, Italy, Latvia, Lithuania, the Netherlands, Romania, Slovakia, Slovenia and Switzerland.
The Russian and American national academies of science (RAS; NAS) have also been studying the concept. The present meeting in Vienna is a follow on to that organised in Moscow in 2003.


4. Conclusions

- In many countries national laws do refer, at least indirectly, to the possibility of multinational repositories for RAW. However, few countries explicitly treat the issue of multinational repositories in their legislation.

- National policies and legislations differ greatly in their treatment of waste import/export – both being basic conditions for multinational repositories.

- National legislation and even more national policy in several countries reject the concept of waste import and sometimes even export. Although ethical arguments are sometimes put forward in justification by such countries, these are never given as such in the legislation.

- There is growing support in international organisations (in particular the IAEA and the EC) for multinational repositories.

- International organisations and also most nations recognize the right of individual countries to collaborate in the development of multinational repositories. However, they also recognise their right to prohibit the import and/or export of RAW.

- They also recognise that multinational repositories are ethically justified and can bring global advantages in safety, security, environmental protection and economics.

- By attending this conference, you are working on important steps towards multinational repositories for RAW. Thank you for doing so and for your attention.
5. References


[http://www.unece.org/env/eia/eia.htm#Text](http://www.unece.org/env/eia/eia.htm#Text)
[8] Euratom Proposal for a council directive (EURATOM) on the management of spent fuel and radioactive waste. Also referred to as nuclear package.

http://www.euronuclear.org/info/nuclearpackage.htm


www.arius-world.org


www.iaea.org/Publications/Documents/Infcircs/2005


http://www-ns.iaea.org/standards/documentpages/other/radioactive-waste-management.htm
### Table 1: Export, import, transfer of RAW; attitude towards multinational repository

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<th>Country</th>
<th>Import of foreign RAW for disposal permitted?</th>
<th>Export of RAW permitted?</th>
<th>Disposal Policy for RAW, Attitude towards multinational repository</th>
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<td>Yes (conditions)</td>
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### Table 2: Ratification / adoption of international conventions / treaties

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<tr>
<td>Switzerland</td>
<td>Yes</td>
<td>Yes (accession)</td>
<td></td>
</tr>
<tr>
<td>Ukraine</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>United Kingdom *</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>Yes</td>
<td>Signature only</td>
<td></td>
</tr>
</tbody>
</table>

¹) The EC has also signed and ratified the Espoo convention.
* Member State of EU
* cand. Candidate country to the EU

Binding to all EU Member States (marked with *)