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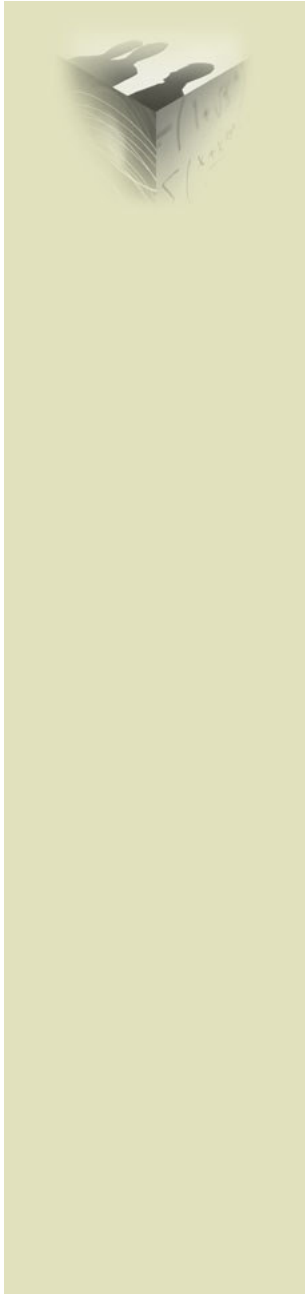
THE LEGAL TREATMENT OF THE MANAGEMENT OF RADIOACTIVE WASTE IN FRANCE

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INTRODUCTION

I. FACTS

- ✓ France is second largest producer of nuclear energy in the world, after the United States, followed by Japan
- ✓ 59 nuclear power plants in use with a total power of 63 GW
- ✓ 78 % of kW of electricity are produced by nuclear energy
- ✓ Total cost of investment in nuclear plants in 2003 was about 77 million euros
- ✓ 10 million euros could be saved in comparison to the utilisation of gas installations
- ✓ Output of 31 million tones of carbon into the atmosphere has been avoided



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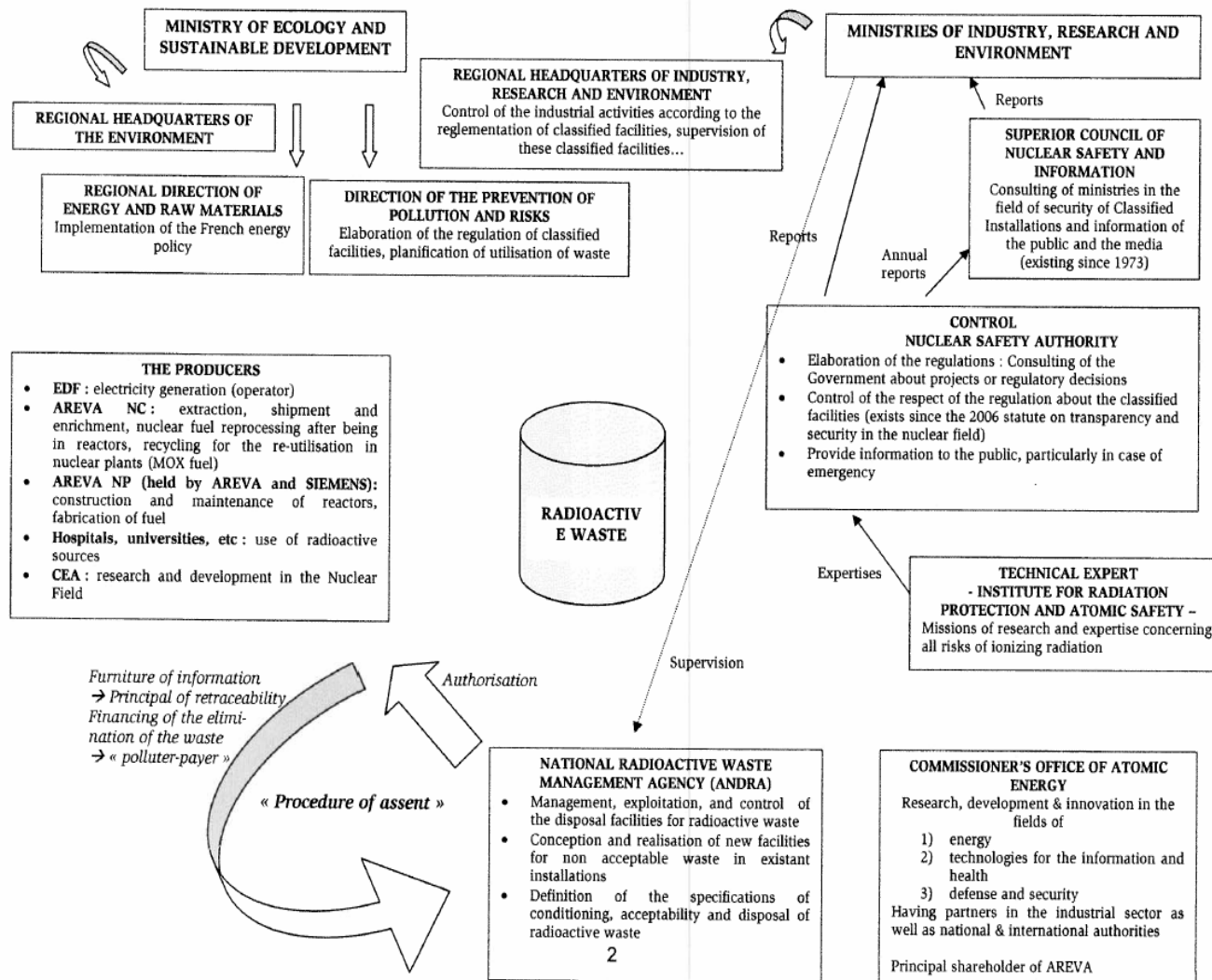
Laws approved by French Government in 2006:

- ✓ Statute No. 2006-739 of June 28th 2006 on the Sustainable Management of Radioactive Materials and Waste, codified in articles L. 542-1 and following in the French Environmental Code

- ✓ Statute No. 2006-686 of June 13th 2006 on the Transparency and Security in the Nuclear Field

- ✓ Amendment brought to Statute No. 68-943 of October 30th 1968 in its consolidated version of June 14th 2006 on the Civil Liability in the Field of Nuclear Energy

II. THE ACTORS





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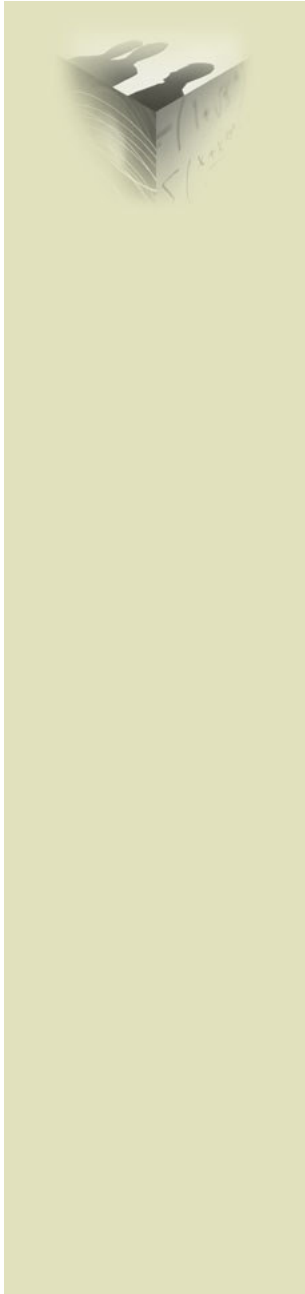
I. THE DEFINITION OF RADIOACTIVE WASTE AND ITS CONSEQUENCES

A. DEFINITION

1. IN INTERNATIONAL LAW

- ✓ Article 2 of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management dated September 5th 1997:

*“ **Radioactive waste** means radioactive material in gaseous, liquid or solid form for which no further use is foreseen by the Contracting Party or by a natural or legal person whose decision is accepted by the Contracting Party, and which is controlled as radioactive waste by a regulatory body under the legislative and regulatory framework of the Contracting Party.”*



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*“**Spent fuel** means nuclear fuel that has been irradiated in and permanently removed from a reactor core.”*

*“**Storage** means the holding of spent fuel or of radioactive waste in a facility that provides for its containment, with the intention of retrieval.”*

*“**Disposal** means the emplacement of spent fuel or radioactive waste in an appropriate facility without the intention of retrieval.”*

- ✓ Approval of the Joint Convention by France by Statute No. 2000-174 of March 2nd 2000, in force since June 18th 2001



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2. IN EUROPEAN LAW

- ✓ Article 2 of the Council Directive 92/3/EURATOM on the Supervision and Control of Shipments of Radioactive Waste between Member States and into and out of the Community:

*“**Radioactive waste** means any material which contains or is contaminated by radio-nucleates and for which no use is foreseen.”*

- ✓ Article 5 1) of the Council Directive 2006/117/EURATOM on the Supervision and Control of Shipments of Radioactive Waste and Spent Fuel:

*“**Radioactive waste** means radioactive material in gaseous, liquid or solid form for which no further use is foreseen by the countries of origin and destination, or by a natural or legal person whose decision is accepted by these countries, and which is controlled as radioactive waste by a regulatory body under the legislative and regulatory framework of the countries of origin and destination.”*

*“**Spent fuel** means nuclear fuel that has been irradiated in and permanently removed from a reactor core. Spent fuel may either be considered as usable resource that can be reprocessed or be destined for final disposal with no further use foreseen and treated as radioactive waste.”*

*“**Disposal** means the emplacement of radioactive waste or spent fuel in an authorised facility without the intention of retrieval.”*

*“**Storage** means the holding of radioactive waste or spent fuel in a facility that provides for its containment, with the intention of retrieval.”*

3. UNDER FRENCH LAW

- ✓ No definition given by the former Statute No. 91-1381 from December 30th 1991 (“Bataille Act”); only a general definition of waste was provided by the former article L. 541-1 of the French Environmental Code
- ✓ Article L. 542-1-1 of the French Environmental Code:

*“A nuclear fuel is regarded as a **spent fuel** when, after irradiation in a reactor core, it is definitely removed from it.”*

*“**Radioactive waste** are radioactive substances for which no subsequent use is foreseen or envisaged.”*

*“**Ultimate radioactive waste** is radioactive waste that can no longer be treated in the technical and economic conditions of the time, particularly by extracting their exploitable content or by reducing their polluting or dangerous nature.”*



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*“The **storage** of radioactive materials or waste is the operation consisting in placing these substances temporarily in a specially laid out installation at the surface or at a low depth, pending their retrieval.”*

*“The **disposal** of radioactive waste is the operation consisting in placing these substances in an installation specially laid out to guard them in a potentially definitive manner with due regard for the interests mentioned in Article L. 542-1.”*

*“The **disposal** of radioactive waste **in deep geological formations** is the disposal of these substances in a specially laid out underground installation, with due regard for the reversibility principle.”*

B. CLASSIFICATION AND MANAGEMENT

1. CLASSIFICATION

✓ France has agreed a system based on

a) Level of radioactivity per mass (measuring unit “Bq”)

→ Low-level waste (LLW)

→ Intermediate-level waste (ILW)

→ High-level waste (HLW)

and

b) Period of radioactive material

→ Short-lived radioactive waste

→ Long-lived radioactive waste



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2. MANAGEMENT

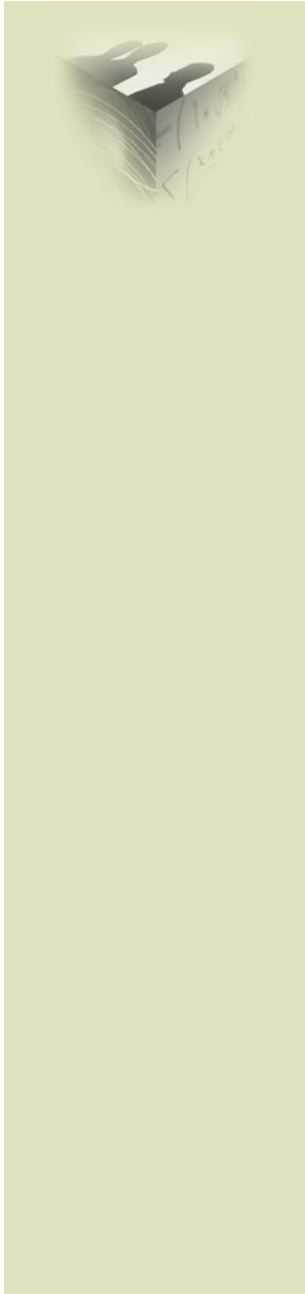
a. NATIONAL RADIOACTIVE WASTE MANAGEMENT AGENCY (ANDRA)

- ✓ Responsible for the management of radioactive waste in France, especially of the long-term radioactive waste management

- ✓ Statute of June 28th 2006 fixes its tasks:
 - Research and studies in the field of storage and disposal in deep geological formations

 - Conception and management of storage and disposal facilities

 - Ensure the collection, the shipment the reconditioning of polluted sites on demand and at expense of those responsible, who are also liable for the cost of radioactive waste



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b. BASIC NUCLEAR INSTALLATIONS (INB)

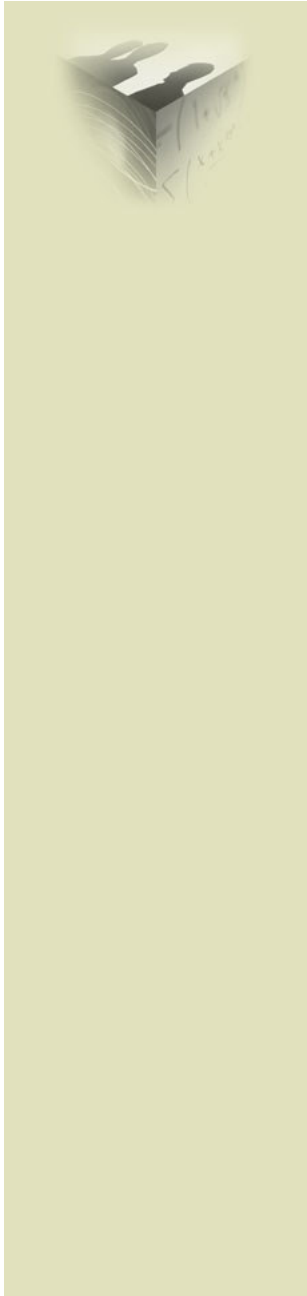
- ✓ Decision of the government of March 11th 1996 defines INB
- ✓ Classification of radioactive substances and installations in the French Nomenclature of Classified Facilities for the Protection of the Environment in the categories 1700, 1710, 1711, 1720 and 1721
- Depending on the gravity of the hazards or drawbacks, the installations are subject to an authorisation or declaration (articles L. 511-1 et seq. of the French Environmental Code)
- Articles L. 512-1 et seq. regulate the process of authorisation
- “Operator” under article L. 511-1 is the “operator de iure”, the “operator of fact” and even the “co-operator”



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c. DIFFERENT TYPES OF RADIOACTIVE WASTE MANAGEMENT

- ✓ Low-level waste is stored in disposal facilities for radioactive substances, like Morvilliers site in the region of Aube
- ✓ Low-level and intermediate-level waste is stored at the Soulain-Dhuys site (studies in the field of low-level long-lived waste disposal in subsurface repositories are currently being developed)
- ✓ **PROBLEM OF ILW/HLW LONG-LIVED WASTE MANAGEMENT**
 - Former “Bataille Act” of December 30th 1991 established 3 branches of research to be achieved before 2006:
 - separation and transmutation of long-lived radioactive elements,
 - reversible and irreversible storage possibilities in deep geological formations,
 - long term packaging and warehousing surface processes



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- ✓ New Statute of June 28th 2006 establishes research tasks in the fields of
 - separation and transmutation of long-lived radioactive elements,
 - reversible disposal in deep geological formations and
 - storage

- ✓ Deep geological formations considered as INB and follow a special authorisation procedure under article L. 542-10-1 of the French environmental code

- The authorisation will be granted exclusively on the basis of a new statute (to be adopted) fixing the conditions of reversibility

C. PRACTICAL CASE: JUDGEMENT OF THE FRENCH SUPREME COURT OF DECEMBER 7th 2005

- ✓ *COGEMA vs. Assoc. Greenpeace France* (Cour Cass. N° 05-16.350 of December 7th 2005)
- After importation of spent fuel from ANSTO by COGEMA, it had been stored awaiting reprocessing at The Hague site
- Greenpeace claimed the violation of environmental provisions: as spent fuel has to be defined as “waste”, its storage exceeding technical limits imposed by the reprocessing is violating former articles L. 541-1 and L. 541-2 of the French environmental Code
- Court of Appeal based its decision on the contract, which did not foresee any subsequent use of the spent fuel, and thus made the provisions on “waste” applicable
- **Supreme Court approved the Court of Appeal’s decision and condemned COGEMA for exceeding the technical limits imposed by reprocessing**



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THE QUESTION OF INTRODUCTION OF SPENT FUEL OR RADIOACTIVE WASTE FROM ABROAD ON FRENCH TERRITORY

- ✓ Article L. 542-2 of the French environmental code:

“The disposal in France of radioactive waste from abroad and that of radioactive waste resulting from the reprocessing of spent fuel and of radioactive waste from abroad is forbidden.”

- ✓ Article L. 542-2-1 of the French environmental code:

“Spent fuel or radioactive waste cannot be introduced into the national territory, save for reprocessing, research purposes or transfer between foreign States.

Their introduction for reprocessing can be authorised only as part of intergovernmental agreements and provided the radioactive waste resulting after treatment of these substances are not stored in France beyond a date set by said agreements. (...)”

- ✓ **Intergovernmental agreement between France and Italy, signed on November 24th 2006 concerning the reprocessing of 235 tones of Italian spent fuel**

CONCLUSION

- ✓ Simplification of the applicable legislation and precise framework for the actors given by the Statute of June 28th 2006
- ✓ Limitation to the storage of treated radioactive waste or spent fuel from abroad on French territory by the implementation of new provisions



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II. DIFFERENT SYSTEMS OF LIABILITY

A. INTERNATIONAL LAW

- ✓ Convention on Third Party Liability in the Field of Nuclear Energy of July 29th 1960 (the “Paris Convention”)
- ✓ Convention on Third Party Liability in the Field of Nuclear Energy, supplementary to the Paris Convention of January 31st 1963 (the “Brussels Convention”)

- Modification of both Conventions in 2004
- Especially applicable to nuclear damage suffered on the territory of any contracting Member State
- France has approved Statute No. 68-943 of October 30th 1968 to fix the measures left to the Member States

- **Establishment of an exclusive and strict liability regardless any fault of the operator of a nuclear installation**

B. FRENCH LAW

- ✓ Liability under the provisions of the French environmental code
 - Articles L. 541-46 and L. 542-2-2:
 - 2 years of imprisonment and fine of 75.000 Euros for committing an infringement according to article L. 541-46
 - in addition, the administrative authority can issue a financial penalty at the most equal to a fifth of the income obtained from illegally performed operations (introduction of spent fuel and radioactive waste from abroad)

- ✓ Liability under French tort law (articles 1382 et seq. of the French civil code)

1. PRODUCER

- ✓ Principle of “polluter-payer” for the producer
- ✓ Unlimited liability
- ✓ Draft order concerning the introduction of radioactive waste and spent fuel from abroad on French territory under articles L. 542-2 and L. 542-2-2 of the French environmental code:
“The operator of a reprocessing facility is the producer of the waste resulting from the utilisation of his installations. As such, he is responsible.”

2. HOLDER

- ✓ Article L. 542-1 of the French environmental code:
“Producers of spent fuels and radioactive waste are responsible for these substances, without prejudice to the responsibility their holders have as nuclear activity operators.”
- Definition of “nuclear activities” in articles L. 1333-1 and L. 1333-10 of the French Public Health Code
- “Liability of the keeper” under article 1384 par. 1 of the French civil code: liability not just for damage caused by oneself, but also for damage caused by articles over which one exercises actual power (strict liability regardless fault)

3. TRANSPORTER

- ✓ Each participant of the shipment is responsible for his task to accomplish
- Sender has to choose the packing corresponding to the radioactive waste and to specify the conditions of transport
- Manufacturer and owner of the packing have to conceive and dimension the packing especially depending on the IAEA Regulations for Safe Transport of Radioactive Material
- Commissioner for Transport organizes the whole shipment process and has to obtain all necessary authorisations
- Specialised companies are in charge of the transport

4. TRANSBOUNDARY SHIPMENTS

- ✓ Based on intergovernmental agreements
- ✓ Council Directive 2006/117/EURATOM establishes simplified procedure of authorisation for the shipment of radioactive waste and spent fuel
- Article 10 par. 2: “the authorisation referred to in paragraph 1 shall not in any way affect the responsibility of the holder, the transporters, the owner, the consignee or any other natural or legal person involved in the shipment.”
- ✓ French AREVA NC foresees in its contracts with foreign clients that radioactive waste resulting from the reprocessing stays in their ownership and is being retransferred to the country of origin

CONCLUSION

- ✓ Exclusive and strict liability regardless of fault of an operator regarding the victim of a nuclear damage
 - ✓ Overlapping and concomitant responsibilities of the other actors
-
- Unlimited liability for the producer
 - Strict responsibility as a keeper for the holder
 - Limitation of the principle “polluter-payer” as the State will take full charge of the costs deriving from the management of radioactive waste if the person responsible for this waste is unable to fulfil its obligations