

Informal Meeting of EU Regulatory Organizations

Toledo, Spain

November 16-19. 1995

CSN

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Executive summary of the meeting

Executive summary of the meeting

The Informal Meeting of European Union Regulatory Organizations was held in Toledo from 16th to 19th November 1995 by invitation of the Consejo de Seguridad Nuclear (CSN), the nuclear regulatory agency of Spain.

Twelve out of the fifteen Member States of the European Union were represented: Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden and the United Kingdom. Austria, Denmark and Owere not able to send representatives of their respective national regulatory agencies.

The main idea behind the decision for calling the meeting was to offer an informal forum for exchanging impressions on different issues currently faced by the international community from the standpoint of nuclear regulators. Due to the informal nature of the meeting, it was not foreseen to reach final conclusions on the subjects discussed. Instead, it was agreed to have a printed report reflecting the personal views openly expressed during the meeting, which would not necessarily represent the national authorities' official position on those subjects.

The meeting was divided into five sessions, each of them dedicated to one specific topic.

The first one was the descriptive presentation of each national regulatory organization and the exchange of experiences on different subjects. Two out of the other four topics corresponded to the sphere of the European Union - the eventual revision of the Euratom Treaty discussed in Session II, and the desirability and feasibility of harmonizing requirements established by national regulatory organizations of EU countries, discussed in Session V. The two remaining topics covered the worldwide international field - the impact of the Nuclear Safety Convention analyzed in Session III, and the views concerning the ongoing Convention on the Safe Management of Radioactive Waste discussed in Session IV.

The comparison among national regulatory organizations as presented in Session I showed the great differences to be expected between countries with nuclear power generation and those having decided to be non-nuclear. But it also showed big organizational structure differences even among the former, due to various factors such as different amounts of electric power installed, territorial structures, legal systems, national idiosyncracies, government organization and parliamentary involvement. Such differences not only appear in emergency preparedness, a topic in which the influence of the above-mentioned factors seems to be more

evident, but also in licensing procedures, operational control of nuclear facilities, and the assignment of the various specific responsibilities in the whole organization. As an example of divergencies, in three cases the national regulatory authority is under the Ministry for the Environment, and in one case each it is under the Ministry for Health and Social Affairs, Industry, Energy, Interior or Housing. In one country, the regulatory body reports to the Ministries for Industry and for the Environment simultaneously, and in another, the regulatory body is split among three agencies under the Ministries for Economic Affairs, Environment and Social Affairs. Two countries have "independent" agencies, in one case directly reporting to Parliament, and in the other assuming the responsibility delegated by the Secretary of State for the Environment.

During the discussion in Session II, general consensus was reached on the view that nuclear safety matters are outside the Euratom Treaty scope. Nevertheless, in spite of some countries considering such a fact as a reason for the Treaty's revision, most governments have not put a high priority or seem to be reluctant to revise the text. Views were expressed in the sense that most relevant issues may be covered through the Nuclear Safety Convention and the ongoing Convention on Radioactive Waste.

It was considered that the Treaty, when established in 1957, reflected a situation for nuclear energy which is now historical. A number of provisions in the Treaty (for instance, the fissile material being the Community's property and the creation of the Community's own safeguard system) and the eventual lack of coverage of other items reflect political, economical and social facts at that time which are not the same today.

Interrelation of this subject with the last item of the Agenda, i.e. harmonization of requirements, was underlined for which reason some participants postponed their opinions until the last session.

Various interventions were made in favor of, against or just reminding of different issues such as the accession of the EU to the Nuclear Safety Convention, the eventual increasing power of the European Parliament, the harmonization of emergency planning and preparedness, the creation of a kind of European Nuclear Safety Inspectorate under the Commission, the need for the EU to give some kind of example to Eastern countries, the military uses of nuclear energy, excluding weapon testing, etc.

Consensus was reached on the fact that an eventual modification of the Treaty cannot

be discussed only on technical grounds but closely linked to political will.

The impact of the Nuclear Safety Convention was discussed in Session III.

Concern on the effectiveness of the peer review process, as the only way provided for in the Convention for persuading people to ensure safety, and on a few provisions where there is some kind of difficulty to explain how to meet obligations were highlighted and discussed from different standpoints and differential nuances.

Various speakers made reference to different behaviours and safety cultures between Western and Eastern European countries, attributable to historical, political and economical aspects and to the great dependence of the latter on Western financial aid to cope with their own nuclear safety situations. In this respect, it was underlined that financial and technical cooperation is not mentioned in the operative paragraphs of the Convention. Finland and Sweden reported on their cooperation with Russia and Lithuania respectively. There was a general consensus that the improvement in nuclear safety in the East will require big financial resources and long technical discussions. Western financial aid is essential, and its amount is so big that the necessary increments in national budgets for such an

aim would only be acceptable to taxpayers if protracted in a way as to reach the expected goal in 20-25 years.

The ongoing process in preparation of the first Plenary of the Convention was analyzed. The initiative of the UK and France regarding the review process of national reports was supported. A long discussion took place about the real meaning of "consensus" regarding the rapporteur's report to the Plenary summarizing the discussions in each country groups' peer review meeting. The essence of the matter is whether the opinion of a country whose safety situation would eventually be criticized during the peer review might or might not condition the final wording of the rapporteur's report to the Plenary. It appeared that a sort of agreement was reached by interpreting that consensus will exist should the text of the report be accepted by all relevant participants without voting or request for modification.

Concern was expressed regarding the burden which the preparation of reports to relatively small national regulatory agencies may represent and on the need to avoid the process of the Convention becoming a permanent, continuous task for national regulators.

The ongoing Convention on the Safe Management of Radiactive Waste was discussed in Session IV.

The rapporteurs highlighted several aspects of the Working Draft - coverage of waste from mining of uranium ores respecting exemption levels; the extent to which coverage of waste produced during military uses could be restricted to radioactive material which no longer has a military usefulness; the international legal framework to manage radioactive material including spent fuel material arising from dismantling nuclear weapons; the need to avoid conflicts with the established regime governing safe transport; the need of ensuring the independence of regulatory people against those who manage radioactive waste, and the convenience that the Convention neither commit signatories to work towards regional solutions for waste repositories nor exclude such a possibility.

It was agreed that the Waste Convention should follow the lines of the Nuclear Safety Convention. Nevertheless, some differences were pointed out during the discussion, particularly in the sense that, regarding technological criteria and safety evaluation methodology, there is not an international consensus for high level waste repositories similar to the one existing for other nuclear facilities.

The need to reach a good international consensus on criteria and methods to demonstrate and verify safety of repositories, espe-

cially in long term perspectives, was underlined after recognizing the paramount importance of political and social problems surrounding the waste management issue. Consensus on technical aspects can be reached in a not too distant future, but getting over the political problem arising from the lack of public acceptance is very difficult. To use every endeavour to gain such a consensus will favour social acceptance, which is essential.

Concern was expressed in the sense that, before such a consensus will be reached, the Convention could either include requirements which nobody would know how to solve afterwards or become just a wishful political document meaning nothing from a technical standpoint.

Difficulties for countries having a small number of nuclear power plants were pointed out and discussed in relation to eventual regional or international repositories of radioactive waste.

Session V was dedicated to the exchange of opinions on the desirability and feasibility of harmonizing nuclear safety requirements among EU Members States national regulations.

The issue arises from the fact that the Euratom Treaty has no provisions related to

nuclear safety (as discussed in Session II) and gain momentum due to the Council of Ministers' 1975 and 1992 Resolutions calling for the progressive harmonization of safety requirements and criteria for ensuring coherence within the EU and its programme of cooperation with non-Member States (e.g. the Eastern countries).

The main topic of discussion was focused on "what does harmonization of requirements mean?" Several countries believe that it just means harmonization of general safety goals or objectives as opposed to harmonization of detailed requirements and, in such a case, consider that harmonization is not only desirable but necessary. Other countries (in general, those being qualified importers of nuclear technology or having decided to be non-nuclear) consider that not only the harmonization of safety goals is needed but also the harmonization of standards and approaches on how to evaluate safety. Among the latter's positions there are some differential nuances regarding the feasibility of such a level of harmonization being reached completely.

It was argued that the lack of harmonized, detailed safety requirements in the EU is weakening the Western preach at Eastern countries concerning the need to improve their nuclear safety situation.

It was also mentioned that even harmonization of standards and requirements among European countries does not ensure harmonization with American, Japanese, Korean and Chinese reactor designs. In this respect, the NEA/OCDE tasks on safety matters were recalled.

Different legal systems and ideosyncracies in countries were mentioned as main issues for approaches to evaluate a given acceptable level of safety resulting as different. The first group of countries mentioned, mainly consider that working together through bilateral or multilateral agreements on real engineering projects (e.g. the EPR project), rather than trying to harmonize just ideas at international level, is the main path to be followed to improve harmonization, supplemented by the temporary exchange of staff members among national authorities. Views were expressed on the suitability of involving industrial organizations in the endeavour to develop harmonization rather than circumscribing the discussion among regulatory agencies only.

Differences of opinion from the standpoint of countries with or without small developed nuclear programmes and those having many nuclear power stations became evident.

The importance of the third party liability issue was pointed out.

Differences in emergency preparedness in EU countries were repeatedly mentioned and discussed, and the importance of good public and inter-agencies communication was highlighted.

At the end of the meeting, almost all participants visited El Cabril low- and medium-level waste repository in Córdoba province, where they also had the opportunity to discuss technical aspects with senior staff of ENRESA, the national company responsible for radioactive waste management in Spain.

Attending

Those attending the meeting

Belgium

Mr. Jean-Paul Samain
Directeur Général, SPRI
Ministère de la Santé Publique et de
l'Environnement

Finland

Prof. Antti P.U. Vuorinen
Director General
Finnish Centre for Radiation
and Nuclear Safety, STUK

France

Mr. André-Claude Lacoste
Directeur de la Sûreté des
Installations Nucléaires, DSIN
Ministère de l'Industrie et du Commerce
Extérieur
Mr. J. Hulst
Deputy Director, DSIN
Mrs. C. Feltn
Chargée de Mission

Germany

Mr. Gerald Hennenhöfer
Ministerial Direktor
Director, Safety of Nuclear Installations
Bundesministerium für Umwelt,
Naturschutz und Reaktorsicherheit (BMU)
Mr. Hart
Regierungs Direktor
Nuclear Law Division

Greece

Prof. A.A. Katsanos
President
Greek Atomic Energy Commission, GAEC

Ireland

Mr. Thomas O'Flaherty
Chief Executive
Radiological Protection Institute

Italy

Mr. Giovanni Naschi
Direttore
Agenzia Nazionale per la Protezione
dell'Ambiente, ANPA

Netherlands

Mr. Joost Versteeg
Head, Nuclear Safety Department
Ministerie van Sociale Zaken en
Werkgelegenheid

Portugal

Mr. A. F. Marqués de Carvalho
Inspector Geral
Direcção Geral do Ambiente
Ministerio do Medio Ambiente e Recursos
Naturais
Mrs. Isabel Roriz
Inspector

Spain

Mr. Juan Manuel Kindelán Gómez de Bonilla

Presidente

Consejo de Seguridad Nuclear, CSN

Mr. Aníbal Martín Marquínez

Vicepresidente

CSN

Mr. Agustín Alonso Santos

Consejero

CSN

Mr. José Angel Azuara Solís

Consejero

CSN

Mr. Rafael Caro Manso

Consejero

CSN

Mr. Alfonso Arias Cañete

Secretario General

CSN

Mrs. Carmen Martínez Ten

Jefa del Gabinete Técnico de Presidencia

CSN

Mr. José María Durruti Galbete

Asesor de Relaciones Institucionales

CSN

Mr. Francisco Fariña Hille

Asesor de Relaciones Internacionales

CSN

Mr. Eduardo González Gómez

Ex-Vicepresidente

CSN

Sweden

Mr. Lars Högberg

Director General

Swedish Nuclear Power Inspectorate, SKI

United Kingdom

Dr. Christopher Willby

Chief Inspector

Nuclear Installations Inspectorate

Nuclear Safety Division

Health and Safety Executive, HSE

Mr. Richard Bye

Head of International Policy Unit.

Programme

Programme

Thursday, 16 November

14:00 - 16:00 Lunch (optional)

16:00 - 19:30 Session I.

- 1 Welcoming remarks (J.M. Kindelán, President of the CSN).
- 2 Approval of the agenda.
- 3 Presentation of each regulatory organization and exchange of experiences.

17:30 - 18:00 Coffee break

20:30 Reception (offered by Regional Authorities).

21:30 Evening tour in Toledo (includes Buffet-Dinner).

Friday, 17 November

9:30 - 11:30 Session II.

- 4 Discussion of the Euratom Treaty - content and limitations.
Rapporteurs: Germany - Italy - Ireland.

11:30 - 12:00 Coffee break.

12:00 - 13:30 Session III.

- 5 Impact of the Nuclear Safety Convention: peer review mechanisms.
Rapporteurs: United Kingdom - Netherland.

14:30 - 16:30 Lunch (with Spanish Government Authorities hosted by H.E.St.D. José Manuel Eguiagaray, Minister of Industry and Energy).

16:30 - 18:00 Session IV.

- 6 Exchange of impressions about the convention on radioactive waste.
Rapporteurs: Sweden - Belgium.

18:00 - 18:30 Session V.

- 7 Harmonization of requirements. Is this desirable? Is this possible?
Rapporteurs: France - Finland - Portugal.

Saturday, 18 November

Visit to the nuclear waste repository at El Cabril (Cordoba).

18:00 Arrival in Toledo.

21:30 Dinner.

Sunday, 19 November

10:00 - 13:00 Guided tour of Toledo.

Session I

**Presentation of each
regulatory organization and
exchange of experiences**

Session I

Welcoming remarks by the president of CSN, Juan Manuel Kindelán

Distinguished colleagues and friends.

Allow me first to welcome you to this informal meeting of the European Regulatory Agencies and also to thank you for the effort of coming here today. The idea behind this meeting is very simple. We just thought of the possibility of exchanging impressions on particularly relevant matters currently faced by the international community on issues for which we are all responsible.

We consider that the timing of this meeting is particularly interesting in Toledo because of the Spanish Presidency of the European Union. Although these proceedings are not included in any official meeting of the Presidency, to a certain extent they could also represent a contribution to it.

We chose Toledo as the meeting place for a number of reasons. The artistic and monumental treasures it possesses, which I hope you will be able to see at least tonight and Sunday in the event there were an opportunity to go outside for a little while. You will remember that Toledo was once the capital of the Spanish monarchy and is a particular meeting point for cultures; Arabs, Jews and

Christians. For this evening, we have an invitation from the Autonomous Government of Castilla-La Mancha, of which Toledo is the capital, in the Fuensalida Palace and we are going to be welcomed there by the Regional Minister of Industry Energy and Tourism.

I would remind you, as you saw in the small leaflet that we sent to you, that we have earmarked this afternoon to a brief presentation for each country to summarize what the functions and activities of each Body are, in order to have an overall rough idea of the different and particular situations of every one of us.

Tomorrow, we have divided the day into four sessions in which, as you already know, we have asked two or three of our colleagues to give us a short briefing on two subjects for an informal discussion afterwards. On the one hand, we shall be referring to the Nuclear Safety Convention, mainly concentrating on its application and the criteria to be adopted for the future Convention on Radioactive Waste Management which has already started being discussed this year in Vienna. On the other hand, we shall briefly address the European Treaty and efforts involved in harmonizing the objectives and criteria for radiological protection of people in the European Union.

Apart from the technical meeting, I hope you will enjoy your short visit to Spain, and as you know, the intention was to visit El Cabril facility for low and medium level waste on Saturday. However, the problem is the weather. This place is located in quite a mountainous part of the north of Andalusia, not far from here, but it is very, very unlikely that the weather will allow helicopters to reach it on Saturday morning. It will be much easier coming back on Saturday afternoon because clouds will be a little higher, but we have prepared a better solution, as somebody told me before, a little more complicated but not so much, because we will take three quarters of an hour to go to the railway station in Madrid and a very quick and comfortable train to Cordoba and then we shall be sleeping overnight in Cordoba and taking a car to this facility in the morning. We can have dinner on the train so, whilst it may be more complicated, it will not be more tiring. We hope we will be able to return here by helicopter, otherwise we shall come by train again and then you can stay here and do whatever you feel like doing, to see Toledo city on Sunday morning.

Before starting our meeting, I should like to introduce you to all the Nuclear Safety Council Board Members who are sitting here in the front row. Mr. Caro is the longest serving Council Board Member. He has been a Board Member for eight years now.

The other four are very young Board Members. Mr. Alonso, who is a professor in a High Technical University in Madrid, Mr. Azuara who was appointed two weeks ago and Mr. Martín who has been a Member already for one year like Mr. Alonso and myself. Mr. Arias is our General Secretary in charge of day to day management of the office and then Mr. Durruti, who is in my Advisory Office in charge of special protocol relations, Mrs. Carmen Martínez Ten is the Head of my Advisory Office and Mr. Fariña who is in this Office in charge of International Relations. I thank you again for your presence here.

Presentation of each regulatory organization and exchange of experiences

1.1. The Belgian organization presented by Mr.

Samain

"I will try to explain a rather complicated situation for the moment. As some of you already know, we have a new Nuclear Law in Belgium. It is a Law of '94, but this Law is not yet in force because we need some grease to implement it. I will try to give a picture of, indeed, a moving situation. For the moment, we had two services, one in charge of Nuclear Safety, and this service depended on the Minister of Labour and Employment, and another service in charge of Radiological Protection and this service depended on the Ministry of Public Health and Environment. This was the situation until July this year. Since July this year, both these services depend on the Ministry of Interior and it's a sort of prefiguration of the Agency which shall come into existence, we hope, as from the beginning of next year and we are preparing the decree to create this Agency. For the moment, the situation is that both services are being headed by one civil servant and I am in charge of this problem. I have to coordinate the activities of the two services. It gives some advantage in practice. It will give an opportunity to do some economy with personnel because I guess that every organization has to first

address the problem of the number of special agents, people in the field of nuclear safety and radiological protection, and the new organization, this so-called pre-Agency, gives an opportunity to put a limited number of people in charge of all the problems with respect to their personal conveniences. You know that, in the technical field, we have the support of an organization, known as "Association Vinçotte". Vinçotte is a technical body. We are also in charge of inspection in nuclear power stations and we are given judgement on problems they have to manage for the improvement and enforcement of legislation and regulation. But the final decision is always taken by the Ministerial Office's of, for the moment, both the services of which I am in charge.

Vinçotte is agreed by the Ministries to act as support for the Ministries. Vinçotte is in the field of management independent, but receives instructions from the Ministry. It's, I don't know the exact English translation, but in French, we said, "C'est le bras armé du Département". The two services before mentioned involve sixty persons for the moment, technical and administrative people, and Vinçotte is also about sixty persons, but it has ninety percent of engineers. Vinçotte is a real technical body. We have taken some regulatory precaution to ensure that Vinçotte is really independent of the operator. First, we, the Board of

Management of Vinçotte, are free of all industrial people from the electricity sector. The Board of Management is composed of scientific people from Universities, representatives of the General Federation of Industry and also of Trade Unions, and one representative of the Ministry is nominated as observer on the Board of Management. That's the first step. The second step is that there is also a Control Commission. It's chaired by a representative of the Ministry of Labour and Employment. That's the situation up to date, but it will be changing in a very short time. The Chairman will be a representative of the Agency in the near future. And this Commission will be watching over all the activities of Vinçotte. First precaution, all experts who are active in Vinçotte are agreed, personally agreed, by the Ministries, on a scientific basis. They first have to have some University grades and some experience in the field, and, there is also a judgement by what we call the Special Commission. The Special Commission is a Government Advisory Board from the two Ministries until last July and from the Ministry of the Interior after July and this Advisory Board is composed of, first civil servants of all Ministries involved in the field, the Ministry of Employment, Public Health and Environment, Economy, Justice, Interior, Internal Affairs, and also an equivalent number of scientific people from the

Universities. It's a Scientific Advisory Board. And this Scientific Board gives advice on the capabilities of each expert from their side. And the last stage is maybe sometimes the most important but it's an informal one, it's a knowledge that civil servants have the capabilities of expert advisors and I can personally say I am fully convinced of their capabilities. So we also have a technical judgement on it and it's by the relations we have from day to day with people from Vinçotte that we can gain the conviction that they work very good and when we have to discuss some reports we are fully aware that they are very good. It's also a personal conviction you'll see.

I didn't mention it before but it's very important to say that Vinçotte is a non-profit organization. That's by Law. Until now, Vinçotte directly paid by the operator and the new Law that will come into force next year, I hope, provides that it be paid by the Agency and the Agency be paid by the Electric Utility. There will no longer be a relation between operator and investigator, it's also a question of principle, and it's the reason this new regulation will be issued, to avoid any suspicion that there will be pressure from the operator of the nuclear power station on Vinçotte to avoid problems and so on. This is very important. I have to say that for the last few years, and I can speak of the last fifteen years, and somebody else can

maybe go further back in the past, that Vinçotte has always acted very independently from the operators and we have very factual reasons to say it.

In Belgium, Vinçotte only acts as a Control Board. It has never done calculations, it is not a study bureau, for the operator it is only a Control Board for the Authorities and it is not allowed to do calculations and studies for the operator, this is also in our regulation. Then it has been a long debate upon the independency of the Control Board and it's what's very important. The regulation has been growing for more than twenty years to ensure that the independency is very real.

One of the reasons when creating an Agency is indeed to face the difficulty to have a line between radiological protection and nuclear safety and I have to admit that until very soon, we have some problem with having this line. And it will be easier to have a decision on the fact in one organization. It's easier than to decide between two services at two different ministerial departments with two different Ministers. It's one of the reasons we will try to have the Agency. Another reason is that I have some contacts with colleagues from European countries in all of the fields and we know that it's rather difficult in the financial context of today to engage more civil servants. One of the dif-

ficulties we met during the last fifteen years was to have new people in our services, in our offices, and one of the major reasons to create an Agency which is just not a pure civil servant office, but what we call in Belgium "parastatal". It's not a State office, it's just "parastatal" with all the regulation allowing to engage new people and so on, with a Board of Management designated by Ministers but this Board also has great power to decide by itself. I have to do some comparison. I can compare it with some new European Agency, like the European Environment Agency or another Agency created by the Commission as an independent body. It's something like that Agency.

In Belgium, for the moment, the Department responsible for safeguards is Foreign Affairs, with the support of a special service from the Ministry of Justice. But the new Law provides for support to be given by the Agency, the technical support and the collaboration with the inspectors from IAEA or from Euratom will be given by the Agency. Also I have to say that the environmental protection was the responsibility of the Ministry of Public Health and Environment through the service in charge of radiological protection which is also in charge of all environmental problems related to the nuclear field."

1.2. The Finnish organization presented by

Mr. Vuorinen

"I have distributed a short brochure giving a main streamline of our Regulatory Organization. Let me first say a few words about the history. The Governmental Regulatory Control of Radiation and Nuclear Business commenced by Parliament issuing laws on radiation protection and nuclear energy in 1957 which was followed by the establishment of a Regulatory Organization in '58, so my Organization was started in 1958. It began working solely with radiation protection businesses because just a couple of years later nuclear affairs started in Finland. The legislation has been renovated a couple of times but the latest versions are, let's say, a very modern nuclear law which was issued, I think, in 1988, and new radiation protection legislation issued in 1992. So we have rather modern legislation. The Finnish Centre for Radiation and Nuclear Safety Control is established in law. So there is a law dictating obligations and our rights and we are administratively under the Ministry of Health and Social Affairs. But, the Ministry responsible for nuclear energy in Finland is the Ministry of Industry and Commerce, so we work for that Ministry and there is the Ministry of Interior, which is responsible for emergency preparedness, so we work also for that Ministry. The Ministry of Agriculture is responsible for

most areas of foodstuff purity and we work for that Ministry of course. And we practically work for all the Ministries. At the moment we have a staff of two hundred and fifty people and our budget is about ninety million Finnish marks, that is about twenty million dollars. And our work has been distributed, and organized mainly into three departments, nuclear safety department, radiation safety department and research department. In addition to that, we have administration, of course, and we are directly connected with the Director's office, a small group for emergency preparedness secretariat and also information services. If you look into more detail of the duties of a nuclear safety department, we will see that their work is mainly divided into four offices. Safety of nuclear power plant operations, that's operational control, and then we have a nuclear power plant safety analysis office, a fuel cycle safety office and finally an office for radiation safety and emergency planning. This fuel cycle safety includes also safeguards and physical protection matters, so that everything which needs regulatory control is included. The radiation safety department is the department taking care of regular radiation protection control in Finland, all kinds of use of radiations, ionizing radiations and even non-ionizing radiations is under our control. We also have a metallurgy laboratory so we are obliged to keep secondary

standards for measuring, let's say, that is important especially for checking the therapy units for hospitals. Non-ionizing radiation includes well all kinds of radiation, sunshine, ultra-violet, lasers, the low and high frequency. For medical applications of magnetic resonance, at the moment there are some, let's say, safety rules for those which use these machines but not so much for patients, so that there are some safety concern about those who operate these things with extremely high magnetic fields, but I mean that is an area where the real scientific knowledge of health effects is very uncertain. On this subject we have a certain regulatory control. The operators are responsible for safety, but we have a certain regulatory control as far as there are regulatory requirements. If some elements, some instruments are produced in Finland, so we may check them and the operational control, let's say Governmental regulatory control, is done from our organization. We also have a research department. I would say that, with reference to the nuclear safety department, there are about seventy people; in the radiation protection department, about forty, and in the research department about seventy or seventy five and they have ten different laboratories, mainly on radiation biology and then environmental problems related, so that we do not do nuclear safety research, technical nuclear safety research. Since the beginning in Finland, we

have divided responsibilities so that we have a governmental research organization which we call VTT which carries out this technical safety research and we use famous consultants in many cases, in many areas related to health effects and environmental problems. Let me say a few words about licensing our nuclear facilities in Finland. Our legislation assumes that if somebody wants to build a nuclear power plant he needs, at first stage, a so called decision in principle so he's obliged to show that his plan is for the benefit of the country and of course we will do the technical safety evaluation.

Government will decide if it agrees with the proposal and if it says yes, that goes to the Parliament and Parliament will say yes or no. That is a new feature in our legislation and that concerns also, let's say, when we are preparing to construct waste storages so the decision in principle has to pass Parliament approval also and, after getting that decision, there is a normal construction licence application and an operation licence application and we act as a technical control body and perform the technical evaluation and follow up of construction and operation, so that we will make the technical decisions but the, let's say, the important political policy related decisions are made by the Government. So, the construction permission is issued by Government and the operation licence is also issued by Government. But, Government can issue these licences

only if we propose issuing these licences. We are a regulatory authority, we are a research organization and we act as an emergency preparedness organization. Let me say emergency preparedness, what is our duty there? We have to know what the threat condition is, what the radiological condition is. We are obliged to prepare recommendations for those organizations which have responsibility to take counter effect actions. And we can also provide some services, let's say for example, we have centralized the dosimetry service in the country so we have the obligation to keep the central dose registry and, we have special project groups. For example, over the last four years, we have been working to improve Russian nuclear power plants, Russian safety culture and so on, so we get our money through a budget from Parliament but we can get additional money from various Ministries like let's say, for this Russian assistance, from the Foreign Ministry. Our regulatory services are paid by utilities and those which we control but we do not get money directly, it goes to Government so we get that back sometime but it is not earmarked money.

Regarding emergency preparedness, we have rather good relations between Nordic countries. For example, we now see our emergency centre operating gamma dose-rate meters located in Sweden and in

Norway and in Denmark. We can read them from our system directly, and they can read ours and we have installed round SOSKEVITBORE on Russian side close to Saint Petersburg area, seven monitors and to cover Denmark we are installing twenty more round SOSKEVITBORE and next year we will be reading all these dose rates. We have already installed eight. We have a bilateral agreement with Minatom and the power plants, and we have installed eight stations, monitoring places in Kola peninsula, where there is a nuclear plant and there are two hundred reactors in Murmansk area, submarines I mean, and a lot of spent fuel storage centres. We have installed a monitoring network there together with Norwegian colleagues so that we can read and if something happened we agree to be with many European countries. We send messages to other countries so that we have Germany for example, we have cooperation with France (your colleagues visited recently Finland for that purpose) and regarding Estonia for example, there is a further development going on. I will mention one thing with which I am not satisfied, and that is this so called ECURIE system working from Luxembourg. That is working with a very complicated language systems, that is old-fashioned and should be thrown out, and we should agree to work with one single language, like in aviation and at sea, as emergency organizations have

been working for hundreds of years already with one single language, but using a coded language! Our experience from emergency exercises is that if we send an urgent message according to rules they should answer that they have received it. Because of this coded language, they answer maybe next day or maybe one week later or so on....

The regulatory responsibility like for the other nuclear safety radiation protection related matters, the primary responsibility for waste relies on the waste producer and well according to our legislation when it is agreed that waste has been safely disposed then let's say this very very long term responsibility turns to our Government, but even then the financial responsibility still lies on the waste producer. We are a regulatory body seeing that adequate safety requirements are fulfilled. We control and we develop the requirements.

Finland is not as big as France but it is not so small either, but fortunately nuclear power plants are not located so far from Helsinki. We have site inspectors but they work let's say mainly for contract persons and they do some routine inspections but most of the inspections are done from our headquarters in Helsinki, so that the mean is that they have five inspectors on sites but only one resident inspector.

In relation to safeguards before Finland joined the European Union last year, it was very very clear that our role was different from now in the sense that we had a responsibility to report to Vienna. The utilities of course take care of many things with regard to safeguards and we follow what they are doing. They report to us and we will do inspections, safeguard inspections. And as I said according to the Vienna Agency rules, we had centralized the responsibility to report to Vienna but according to Euratom rules, utilities report directly to Euratom. Our role is different then in the sense that we have not responsibility to report to Euratom, we have what concerns our national safeguards control responsibility which is exactly the same as it was previously so that we have a full responsibility to see that safeguard applications are followed by the utility in all cases and we have a national book-keeping system and so on. In that sense there is practically no change but utilities now have the responsibility to report to Euratom. Of course there is a turnover period when there is a mixed system."

On this subject, Mr. Högberg said:

"When we looked at it, my Agency also had the responsibility for safeguards or, in the more general term, the supervisory authority for Swedish compliance, Swedish industry compliance with the various non-

proliferation agreements that Sweden has entered into and with that I mean we of course entered the non-proliferation treaty and had the safeguard agreements with IAEA but we also have a number of bilateral agreements which are older than that with the United States, Australia and Canada. These are now being replaced step by step by agreements with Euratom. But our Government strongly feels that the responsibility, the commitments, under the non-proliferation treaty are national so if anything happens, if Swedish fissile material under Swedish jurisdiction goes astray somewhere, then it's a national responsibility. I mean, the Euratom system is an accounting system and in Sweden we have taken approximately the same steps as Professor Vuorinen talked about. The reporting from industry goes directly to Euratom, it's computerized every day, but they also update our files so we have updated files on all fissile materials in Sweden. Secondly, Sweden has been active for many years in developing the non-proliferation regime and of course this is a cooperation with the IAEA on developments of this safeguard schedule. Thirdly, export-import control of sensitive materials is totally outside Euratom control. This is wholly national responsibility."

And Mr. Vourinen finished by saying:

"Let me add something. You now see Euratom inspectors also coming into the picture and we have some problems just now under consideration. Some of our inspectors have been agreed to by the Vienna Agency and Euratom has directly accepted our utilities, and we hesitate somewhat to agree with some inspectors from some nationalities, some wargoing nationalities or some other nationalities which we know there are terrorist groups being educated, so we have some problems at the moment to accept some safeguards inspectors who have been accepted by other countries in Europe. I don't know what our State Department will do in that respect because they will take final political decisions in this case, but our technical evaluation after consulting also our police organizations has been that we do not recommend acceptance of certain inspectors, so that might be a problem."

1.3. The French organization presented by Mr.

Hulst

"I have the pleasure to present, as briefly as I can, the safety organization in France. It's some kind of a challenge. I promise to stay within ten minutes. First, do we need a safety authority? Our feeling was that the first responsibility was to the operator and that we have built up a system in which responsibility for the project is probably greater than the one of the DSIN. As a safety authority we set a general safety objective requirement. The operators come with their solutions. We check that these solutions fit our objectives, then they implement the approved measures and we then check that what they do is in compliance with what they are set to do. I think that is the main score of the French system. Now, I shall come to the board to go into details on the organization. It's somewhat complicated after that first simple chart to implement what we said. Above, on top, are the Government bodies and below the technical support bodies. DSIN as a member of the Ministry of Industry also reports to the Ministry of the Environment. Decisions are taken jointly by the two Ministers on the proposal of Mr. Lacoste. Of course, some decisions are taken by Mr. Lacoste on behalf of the two Ministers but when he takes these decisions he can act on the behalf of the Minister for Industry and at the same time on behalf of the Minister of the

Environment. At the Parliament level, there is a Scientific and Technical Office for the Assessment of Choices whichever the choices are. Are we going to get involved in France in space technology development or are we going to go to development of semi-conductors and so on?. It's not only nuclear, it's a parliamentary office composed of Senators and Deputies to assess the choices we make in several technical fields. We also have a High Council for Nuclear Safety and Information. It's a body composed of officials, journalists, trade unions, opponents to the nuclear (we have some anti-nuclear organizations there) and they say their word on what we are trying to do in the nuclear safety field and we have a strong inter-ministerial commission for basic nuclear installations which is particularly targeted to the main facilities. The DSIN is a very small entity with another one hundred and fifty persons in Paris and the Paris vicinity and one hundred and fifty persons in what we call the DRIRE, the Regional Directorate for Industry, Research and Environment spread over the country. So, overall, three hundred persons. But, with three hundred persons, we cannot manage fifty five plants plus about fifty other facilities which makes about one hundred and ten nuclear facilities, reactors, fuel cycle installations, waste repositories and so on. So we need support and this support is provided by first the IPSN, Institute for Nuclear

Safety and Protection in the CEA and some standing expert groups on nuclear reactors, long term waste disposal and other nuclear facilities. And, there's a specific standing group for pressure vessels which in fact is a historical section deriving from the past development of pressure vessels in the industry. Recommendations come from the technical field up to the decision making level and if needed we ask the Government and the Parliament to assess and to support our decisions. How are we organized? We have four technical divisions: plants, other reactors, nine hundred megawatt series, thirteen hundred and fourteen hundred megawatt series and the BCCN (Bureau de Contrôle des Chaudières Nucléaires) for the main components of the primary and secondary circuits; plus three horizontal divisions, one dedicated to inspection of the emergency preparedness, my division in charge of international relations plus the financial and administration. In the regions, we have the dislocation of the task through nine DRIRE's nuclear divisions, mainly on inspection assessment of incidents on site but without any resident inspector. We have no resident inspectors at all. Of course, if needed, we bring inspectors from the headquarters to make a dedicated inspection with the team. Now, about the regulation. Regulation has three levels in a quality regulatory pyramid. There is a very small group of laws. We are thinking about a new

law but we are not so much convinced that a new law would bring more than what we have already achieved without many details. Second, the regulatory field, that is decrees, ministerial orders, letters of options, what we call basic safety rules. So, it's the second level which is the executive body and, as I said, first we rely to a large extent on industry responsibility and design and construction rules, codes and standards which are known as RCC, for those who know the French industry, which are built up by the industry and approved by us. Our approach is not to be prescriptive, but to give a lot of responsibilities to the operator and let him come back with solutions which we think might be better than the one we should have imagined ourselves. The RCC refer to design and construction rules, processes, materials, civil works, fuel, electric equipment, fires and so on, and also maintenance. Some are similar to the ASME codes but they are more, let's say, genuine for the French industry. The operator, of course, complements these documents with the safety analysis report at the various levels of the licensing process. There are also general operating rules which are very important, specific provisions in case of options which are taken on site emergency response plan which is the responsibility of the operator too, general procedures and licence documents for effluent release, etc. DSIN is the port of entry of every document, even if

these documents have to be dealt with by other Ministries, so we assume coherency. So when the operator wants to obtain a construction licence, he makes an application. This application is sent to us, and then derived to the Ministry of Industry, the Ministry of the Environment and IPSN. Then we send it to the prefect and we'll answer public enquiry and consult with other Ministries concerned, Health, Interior and so on. IPSN is the key element in our assessment. From IPSN come recommendations and also come recommendations from the standing groups of experts and then all the information from public enquiry and technical evaluations come back to DSIN. We prepare our decree if we approve. We can say we don't agree with previous assessments or recommendations and they have to go back and do more homework and come back with a better solution. So DSIN prepares a draft decree which is then passed to the Interministerial Commission on Basic Nuclear Installations. If there is an approval for releases then the Minister for Health gives his approval and then the construction licence is given. The licence has no lengths. Now let me speak a little about emergency procedures. It becomes a little more complicated because in the case of an emergency we have several ministries involved. The Ministry of Industry and Environment mainly for safety aspects with IPSN support; the Ministry of Health with the

General Directorate of Health, DGS, and it's support body, OPRI, formerly SCPRI formerly directed by Professor Bernard and now by Mr. Mas; and the Ministry of Interior and the DSC, Direction Generale de la Sécurité Civile with CODISC which is the Centre of Security and Support. They are, for instance, in charge of emergency firemen and all the support in case of any accident of any kind. Regarding the balance between decision making in emergency preparedness, we have the national level and the local level. There are technical teams which support the decision makers to take decisions, and the decision makers have to coordinate together. It's not easy. The management decision makers are DSIN, EDF Paris but also EDF on the site and one very important actor who is the Prefect in the region or in the department. That Prefect has the power of the Government in the region so he has to take decisions to mobilize the army, the firemen, the hospitals, to decide whether we are going to evacuate or shelter the population at once or not. So he has a paramount role, but he has no technical competence so he has to be supported by decision makers and these decision makers are in Paris, the head of DSIN and the head of EDF (if it's a plant of EDF) and the head of the plant in the region he is in. They are supported by technical centres which are either in EDF in Paris or in Fontenay-aux-Roses in the IPSN. An important action we

have in DSIN is information. For information of the public in France and abroad, we have a system on a few data servers called MAGNUC which can be called from France or from abroad by dialling our number on your phone and you get information on all the sites which are in operation regarding radiological hazards or information in general, the operation, the incidents. There's also a summary of each incident if it occurs and so on. We publish several documents, a bi-monthly document which is called "Control", of which issues are sometimes published in English or even in German. Recently we published one on EPR with German colleagues and it was published then in German, French and English. It deals with the issues which we face or during a period of two months and we mail it to more than three thousand persons now in the world. And we also have our annual report.

Regarding the link between IPSN and CEA from the very beginning we have seen that the technical support should not be too much isolated from the technical field. In other words, it can be supported itself by research and development which is performed not only in the safety field but also in other fields which are the ones of interest. So that was a choice which was made on purpose to have the technical support, the main technical support, inside an organiz-

ation which is not closed but which can exchange and be fruitfully enriched by exchanges with other colleagues. It makes a flow of exchange of personnel easier than if it were separated. But, after a certain time, this organization was criticised and it was true that the criticisms were real, and were good criticisms, because IPSN was also doing work for the industry in anticipation of decisions which were then taken by us. So, we could be accused of, let's say, pushing a decision through preliminary work done with the industry. Therefore, what we have now installed is the separation between the people who work for us in IPSN and the others which are in IPSN but don't work directly for us. IPSN is fifteen hundred persons and about three hundred and fifty work for us in the safety assessment division of IPSN and they only work for us through a contract which is annually negotiated, and which is then paid by DSIN. Second, IPSN has now a committee, a steering committee of some kind, or a Board, and the Chairman of the Technical Board of IPSN is my boss, Mr. Lacoste. In other words, Mr. Lacoste can drive IPSN in the way he likes to drive them for its own purposes, and no longer IPSN, or much less I should say, IPSN would be driven by the Atomic Energy Commission aims or targets."

On this subject, Mrs. Feltin added that the budget of IPSN is voted in Parliament and

is independent of the budget of the Atomic Energy Commission. During the discussion following **Mr. Hulst's** presentation, the dialogue which is quoted added important information.

Q: Let's say if there were an accident in a nuclear facility and fire and a release of radioactive material, who would be in charge of protection measures in France?

Mr. Hulst: As I showed very briefly on the sketch of emergency preparedness organization, the boss is in the region. So he has all the means to cover an accident with or without release. He is supported by local means which, as I said, are firemen, hospitals, army, transportation. He can mobilize, in his region, all the means which could be used in that emergency case. For taking decisions in the field of nuclear safety or consequences, he is supported by the technical entities or the one who have competence, in our case, DSIN supported itself by IPSN and also the Protection Division of the Ministry of Health.

Q: Could you still say whether the Prefect is also deciding what to do on plant?

Mrs. Feltin: No, but in case of conflict between the plant operator and the authorities, the Prefect may receive orders from the Government, in case we deem the decision

isn't correct, but mostly the operator is responsible for his activity.

Q: Just to get a clear picture, what exactly is the role of the Ministry for Industry?

Mr. Hulst: Your question is addressing the separation of power between DSIN and the lobby of energy promotion. OK, this is a good question also. Historically, DSIN, previously SCSIN, was created in 1973. Before that, the regulator was a department inside the Atomic Energy Commission, so the decision was taken to create SCSIN, now called DSIN, in 1973 so we are not so old and the separation is not so old either. SCSIN was not an independent Directorate of the Ministry itself. SCSIN was not in the Division or Directorate of the Ministry in charge of energy in general, which we called the Directorate for Energy and Raw Materials. It was put under another Directorate which was called the Directorate of Industrial Strategy, just to make it a separation. That separation was not enough and when SCSIN became a Directorate itself, with the full power of a Directorate, it was then created as a Directorate independent of the other two, so we now have three Directorates in the Ministry: one for energy, one for industry, different from energy, and the third is safety DSIN. And we also thought it was not quite enough to make a clear counterbalance of

the power of the Ministry of Industry and that's why DSIN now reports also to the Ministry of Environment and their decisions have to be taken jointly.

Q: Can these Ministers decide against recommendations of DSIN or not? If the safety evaluation says no, then can the Ministries decide to overrule the opinion of this technical evaluation?

Mr. Hulst: Well, for instance, the two Ministers can disagree together on the proposal from Mr. Lacoste or one may not be in agreement with the other Minister and if he doesn't agree, there is no decision. In such a case we can call on the Prime Minister. In other words, there have been cases in which we have, say, a "court of appeal" to call on the Prime Minister to arbitrate, if we think the case could be arbitrated, because some decisions can be taken or could have been taken on political issues. You can have a Minister who says I don't take that decision because it is not politically oriented on the other decisions or proposals so it's no longer a question of technique but it could be a political decision and the Prime Minister should then perceive this discrepancy between the two.

1.4. The German organization presented by Mr. Hennenhöfer

"The German system is also quite complicated, because we are a Federal State and I shall try to explain the system to you on one slide. Our Atomic Law is a Federal Law but the licensing authority is the State authority, always. And, the Federal Minister for the Environment supervises the State authority, not the utility directly, and this is a big difference. Therefore we carry out our job in the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) by constitution, supervising the State authority, not super-ising the plant directly. The political problem is that most of the German States operating nuclear power plants are governed by the Social Democrats who are opponents of nuclear utilities and therefore try to get out of the nuclear through the licensing and supervising process. And now we are trying in the Federal Ministry to bring them let me say onto the right path. We have the right to give them directives, special directives, and therefore we have always discussions on a legal basis, on a constitution basis, between the State authorities and my Minister. The technical work is, this is a tradition in Germany, done by expert organizations. You see them on the left hand side, the TÜV and at the Federal level it's the GRS and we have the Advisory Committees, very important for us, especially the Reactor Safety

Commission. GRS is independent because it is a private institution but the shareholders are on the one hand the Federal Government and on the other the TÜV. It's a non profit organization and financed by public money, only by public money. The problem is that on the Federal level, we can't get any money from the utilities because we are supervising the State, not the utility, therefore we need taxpayers money for this work and we sometimes have problems with the budget. I'm General Director of the Directorate for Reactor Safety. I have three Sub-Directorates, one for reactor safety, one for radiation protection and one for the fuel cycle and waste management. I'm not responsible for safeguards. Safeguards are up to the Ministry of Research. This Minister should be responsible for the promotion of nuclear energy. They are interested to move out of the safeguards. My Directorate at BMU has up to one hundred civil servants but we only do the work on the legal side; the main work is done by our technical advisory body GRS with about six hundred members. So what, I think that's enough for our structure."

During the discussion following Mr. Hennenhöfer's presentation, the dialogue which is quoted added important information.

Q: In Germany, licensing and inspection activities are handled at the State level. Can

you mention some figures for how many people are involved on the State level in regulatory activities?

Mr. Hennenhöfer: We are not very well informed but I think in a State like Bavaria, where they have about three or five power plants, I think they will have round about, I think, fifty or so civil servants and they have their TÜV, the Bavarian one which has I think one hundred for nuclear matters. And in the whole system, one State has up to one hundred in the State authority, another one or two hundred in its TÜV and then you have the Federal level.

Q: How do you consolidate the experience you have of the various inspections?

Mr. Hennenhöfer: It's a good question. In the Federal system, we try to do this with our GRS. GRS has the job to compare special events in the plants and to give information about events in German utilities and from abroad.

Q: I think it will be useful to know something about how you deal with emergency preparedness and also the surveillance of the territory at national level.

Mr. Hennenhöfer: It's also done by the States and they have systems, technical systems, for measurement of radiation figures. I

have no special experience now. Sorry I can't explain to you exactly what they are doing.

Q: But is the coordination of emergency preparedness at a national level?

Mr. Hennenhöfer: Emergency preparedness on site is done by the supervisory bodies. Outside the plants, by the radiation protection authorities and the normal authorities for the Interior.

Q: Of the Lander?

Mr. Hennenhöfer: Yes, of the States, of the Lander.

Q: Do you have a Federal emergency centre in Salzgitter?

Mr. Hennenhöfer: But it supports us, they have no own responsibility.

Q: Referring to RSK and SSK as Advisory Committees, could you elaborate a little bit more, how large are they, what structure is supporting these committees, how large are these organizations?

Mr. Hennenhöfer: Members of these Committees are independent persons, normally professors from the Universities and they are supported specially by GRS and by other scientific institutions.

1.5. The Greek organization presented by Mr. Katsanos

"I will be very brief since Greece is one of the few countries which has no nuclear power plants and no plans for the near future to install such plants. However, we do have other installations like a small experimental reactor, a five-megawatt reactor, and we have an organization for controlling other uses of nuclear power and ionizing radiation in general. The Greek Atomic Energy Commission which I represent was introduced in 1954 for peaceful uses of nuclear energy, and it was developed in connection with the Demokritos Nuclear Research Centre from which it was separated seven years ago and therefore it is now an independent organization. However, technically it relies very strongly on the technical support of the Demokritos Nuclear Research Centre. We belong to the Ministry of Industry, Research and Technology and we are responsible for representing Greece with international organizations for nuclear applications. We are responsible for the relative legislation in Greece, we have the authority to licence nuclear installations other than nuclear power plants, which is a decision of the Government, if any such decision will be taken in the future. We are authorized to inspect installations and we also have a programme for teaching people involved with radiation devices. We have the responsibility of monitoring radiation

all over Greece. We represent Greece in bilateral agreements of early notification in case of nuclear accidents and we have such bilateral agreements with neighbouring countries mainly, like Bulgaria and Romania. And of course also we have the responsibility for the dosimetry of all people working in radiation in Greece. There are about seven thousand people. A big problem is the collection of the not-in-use radiation sources spread all over Greece, and there are quite a few of them, and we have now proposed a programme of collection and temporary storage at the Demokritos Nuclear Research Centre and that's about it about my organization. I'm ready to answer any questions that you may have."

Mr. Hulst: You said that you had agreements with neighbours, in particular for emergency preparedness. Could you elaborate a little more? Do you have a decision making, even not together, or have you exchanges of technicians to deal with these topics, early warning, information about the incidents which occur, and so on?

Mr. Katsanos: We rely for nuclear accident preparedness on the international systems, the ECURIE and EURATOM, as well as on the bilateral agreements which are agreements for early notification, nothing else. And we have our own system, our own organization, which starts with a notice of a

nuclear accident and I am authorized to call the technical committees and then all the Ministers, the Committee of Ministers, who are responsible for taking measures according to the technical advisers or the technical committees. I don't know if I've answered your question.

Mr. Hulst: In the Demokritos Nuclear Research Centre, do you produce radioactive isotopes to be used in the country and if this is the case, are you responsible for the licensing of that production and distribution?

Mr. Katsanos: I should make a correction to what I said before. It is no longer called a Nuclear Research Centre. It is simply called a Research Centre, after we separated, but still it remains about sixty to seventy percent nuclear in research. Yes, isotopes are produced for medical applications and we licence Demokritos to produce and distribute them and we renew this licence every year according to inspections and regulations. Also we have given to Demokritos the licence for transportation and distribution of the isotopes introduced from other countries to Greece.

Mr. Kindelán: What are you doing in Greece with radioactive waste management? Are you in charge of controlling waste management?

Mr. Katsanos: We don't have waste from nuclear power plants, we have, let me distinguish, three categories. We have waste from the research reactor for which we have an agreement with the United States to give back the spent fuel, which we have done recently, and then we have the used common radioactive sources for which we are responsible to give permission for their movement and storage but we have nobody to collect and temporarily store them. We have recently proposed a scheme for collection and temporary storage at the Demokritos National Research Center, with the financial support of the Ministry of the Environment.

I.6. The Irish organization presented by

Mr. O'Flaherty

I will briefly describe the work of the Radiological Protection Institute of Ireland, which was established on 1st. April 1992 under the Radiological Protection Act of 1991. The Institute is governed by its own Board, under the jurisdiction of the Minister for Transport, Energy and Communications. The Institute's principal functions are: providing advice and information to the Government and to the public, regulating activities involving ionizing radiation, assisting in planning in relation to radiological emergencies and monitoring radioactivity in the environment.

Advice to the Government relates to proposals for legislation, and to the implications for Ireland of installations abroad, which is a particularly strong concern because there is a high level of political sensitivity in Ireland to the risks from installations in other countries, whether nearby or farther away. The Institute also advises Government in relation to cooperation with authorities in other States and representation on international bodies. Regarding information to the public, this is provided through a library and information service, public meetings, seminars, training courses and response to individual queries.

There are no nuclear power plants in Ireland, but the Institute has the regulatory responsibility for all uses of ionizing radiation in medicine, industry and research. A licence is required for custody, use, transportation, distribution, etc. of ionizing radiation in all forms. There are about 1000 licensees, the biggest numerical category being dental users of X-ray apparatus who account for about 500. About 100 hospitals are licensed, while others include industrial radiographers and three process irradiation plants. All these licensees are routinely inspected. Codes of practice are prepared and issued as required. The Institute also provides a dosimetry service for workers occupationally exposed to ionizing radiation, as well as an instrument calibration service.

The Institute has the responsibility for providing technical support to emergency planning. The ultimate responsibility for the National Emergency Plan lies with the Minister for Transport, Energy and Communications but the Institute provides the main technical advice, which would relate to both the evaluation of hazard and the measurement of radioactivity in the event of an accident, and advice as to any counter-measure which might be appropriate. In this connection the Institute operates a nationwide radioactivity monitoring network linked to its headquarters which provides meas-

urement of radioactivity in a number of locations throughout the country.

The other major area of the Institute's work is the monitoring of radioactivity in the environment, whether from artificial or natural sources of radioactivity. It relates in particular to the emissions from nuclear installations. Monitoring of the marine environment receives particular attention due to the concern which exists about the discharges from the nuclear reprocessing plant of Sellafield into the Irish Sea. Monitoring also relates to the effects of the Chernobyl accident, which are still quite measurable in Ireland and require a programme of monitoring the radioactivity in sheep, general foodstuff monitoring and certification of foodstuffs for export. In the area of natural radioactivity, a substantial programme of measurement of radon in buildings is carried out. Finally the Institute also participates in a variety of research projects including collaborative projects under EU programmes".

During the discussion following Mr. O'Flaherty's presentation, the dialogue quoted added important information.

Q: Have you had joint programmes or free access to take samples from the Irish Sea or UK waters, for example, sediment samples close to Sellafield? Have you any kind of programmes?

Mr. O'Flaherty: Well, we confine our monitoring programmes to our own coastal areas. As far as conditions close to the British coast are concerned, we receive the results of the UK monitoring programmes.

Q: You mention that your environmental programme on the Chernobyl impact was rather substantial and you are very well known for having published a lot of good theories on that. Could you explain what the situation is now? Are you still monitoring for Chernobyl isotopes? What are you finding?

Mr. O'Flaherty: Yes, we are still finding levels of radioactivity in sheep of more than one thousand becquerels per kilogramme, in relatively small numbers, but there are still sheep in mountain areas with such levels and of course that is due to the existence of elevated levels in the soil and vegetation on mountain areas. Therefore, it is necessary to continue a monitoring programme to ensure that such sheep are grazed on lowland pastures before slaughter, so that meat reaching the consumer does not have anything like such levels.

Q: How many persons have you in your organization? And which are your financial resources? Where do they come from?

Mr. O'Flaherty: We have approximately

forty five staff and a budget of about just under two million Sterling pounds, about two thirds from Government and about one third income earned from services.

Q: What is the reason for the storage of waste on the premises?

Mr. O'Flaherty: That is a very real problem. At the present time the long lived waste is stored on the premises of the users, and the Institute licences the facilities for storage but we would prefer if there were a central facility, where used sources could be stored and more closely monitored.

Q: And if so, would that facility be owned by an Agency or the Ministry itself?

Mr. O'Flaherty: That is a decision the Government will have to make when they decide to establish such a store, but so far they have not reached that decision and they will have difficulty, it is clear, in finding a location where the local people will be prepared to accept it.

1.7. The Italian organization presented by Mr. Naschi

"In Italy, since January of last year, the Italian regulatory organization has become the National Agency for Environmental Protection (ANPA). The previous regulatory authority was the ENEA-DISP which was an independent Directorate of ENEA. ENEA is an organization like the Commissariat a l'Energier Atomique in France but ENEA-DISP was by law an independent Directorate. This now is the National Agency for Environmental Protection. It is no longer under the surveillance of the Ministry of Industry but it is now under the surveillance of the Ministry of the Environment. Nevertheless, the Ministry of Industry is still the licensing authority in the sense that the key of authorization is, like in France, up to the Ministry of Industry. The law foresees a very wide field of activities for the new Agency. I must say, that the Agency has no competence on the territory, that means that we study, suggest, advise, make suggestions for recovery programmes, give the level of the acceptable limits and so on, but we, the Agency, are not obeyed on the territory, because the monitoring and control on the territory is up to the Regional Agency for Environmental Protection. This is true for everything but the nuclear activity, because for nuclear activity, the Agency holds the full power that was held by the previous

regulatory authority. As you know, in Italy, the regulatory authority is all enveloping. Everything with a nuclear involvement is under the control of the regulatory authority. Also safeguards. It's up to us, emergency preparedness, from the technical point of view. Otherwise it is the prefect's responsibility, as in France, of the organization, but all the technical work is up to the regulatory organization. Nowadays, the Agency is made up exclusively of ENEA-DISP personnel, that means about less than three hundred people, but it is foreseen that a further three hundred people should be transferred by other organizations, one hundred and fifty from ENEA, one hundred and fifty from other public organizations like the Workers Health Institute and so on. In principle, a total staff of seven/eight hundred people is planned. The financing up to now is completely I can say on the public budget from the Government. We have some income from licencing of transportation or something like that, because they pay for this. We don't have now a programme for construction of new power reactors because as you know, a moratorium is still in force. But at the moment when the Government should decide on the construction of power reactors, it is already stated that 0.8% of the total cost of construction should be given to the regulatory organization for its own expenses. Nowadays, activities earmarked to the Commission are the

activity for dismantling plants and non energetic nuclear activities, that is, isotopes, transportation, waste and so on. We have a lot of activity on new reactors. We have performed analyses of many kinds of new concepts of reactors and we are engaged as well in assistance to Eastern countries. I am not giving the internal organization of ANPA because it is still the ENEA-DISP organization but this will be changing in a few months. So, neither am I giving the licensing procedure because it is still the old procedure, but it is already foreseen that at the moment when it should be a new programme for construction of power reactors, the procedure will be revised because the old procedure was quite complicated for the utilities. So, it is planned to simplify the procedure to a certain extent."

During the discussion following Mr. Naschi's presentation, the dialogue quoted added important information.

Mr. Caro: What's the Italian philosophy for dismantling old facilities, old nuclear power plants?

Mr. Naschi: I don't know if it is the right way to define it, a philosophy, but for the moment we have agreed a procedure with the utility which is to put the plants as soon as possible in a so called "quiet controlled situation", which should be the first step of

decommissioning, with any kind of radioactivity on the plant and wait for dismantling a certain number of years, not yet well defined, to avoid problems of exposure of workers, which is not necessary because at the moment when the plant is without any kind of radioactivity, it is not necessary to proceed to dismantling in the short term.

Mr. Kindelán: I don't understand where you are going to put the spent fuel. Excuse me.

Mr. Naschi: This is a big problem, because in Italy up to now, we have not solved the problem of waste disposal. Up to now, the fuel is concentrated on the Caorso site, and on the Saluggia site. There is no more fuel in Carigliano, in Latina and in Trino.

The decision is to arrive to the expiration of the present contract that ENEL has subscribed with British Nuclear Fuel but, after this, not to reprocess any more, because this does not solve the problem. We will have, in fact, the problem in a couple of years, to dispose somewhere high level waste, medium level waste, and low level waste, coming back from the United Kingdom. For this and for the fuel of Caorso, ENEL is designing an intermediate storage facility.

Mr. Kindelán: Dry?

Mr. Naschi: The solution dry or wet is not

yet decided because this is just a very recent decision and the study for the solution is just at the beginning, at the early stage.

Mr. Martín: What about non-ionizing radiation, like electromagnetic applications, magnetic resonance, all this type of things, have you clearly established your responsibilities in this respect, and how do you see yourselves.

Mr. Naschi: Under our control is just ionizing radiation and everything is under the regime of licensing. Non-ionizing radiation is not under the control of ANPA, it is under the control of the National Health Institute.

Mr. Samain: I just heard Mr. Naschi speaking about transportation of radioactive material. I have maybe a marginal question for the other parties response. Around the table are other organizations which are also responsible for licensing transportation of radioactive material as we are in Belgium for instance.

Mr. Vuorinen: Yes, in Finland we are responsible for licencing and also controlling transportation. There are several organizations which are in a way concerned because depending on what kind of transportation, if it is air transportation, marine or railway or road, there are different organisations, and we cooperate with all of them.

Mrs. Feltin: We are not responsible for licencing transportation, it's the Ministry of Transport.

Mr. Hennenhöffer : We are responsible for transports coming from one State to another, also on the Federal level. This is our own responsibility.

Mr. Katsanos: We are also responsible for licensing and inspecting transportation to and/or from the country or within the country.

Mr. Martín: We are also in charge of licensing and transportation and control. We are in charge of licensing and controlling transportation of nuclear material in Spain usually alone but for what is called dangerous or the nuclear part of the transportation, the ruling of dangerous transportation is the competence of the Ministry of Transport also.

Mr. O'Flaherty: We too have the responsibility for licensing all transportation of radioactive substances.

Mr. Naschi: I have said that we are responsible for transportation but I must add that the issuance of the official licensing, like in France, is up to the Ministry of Transportation. What we perform is all the technical work up to the moment we send

to the Ministry the package of the work done with the technical prescriptions that they should make in the licences. Once the Ministry sign the authorization, everything comes back to us and the control of every single transportation is made by us.

Mr. Versteeg: In our case, the Ministry for Social Affairs together with the Ministry of the Environment are both responsible but it does not belong to my Directorate.

Mr. Marqués de Carvalho: Transportation is the responsibility of the Ministry of Public Works and Transport, but the regulation was considered jointly by a number of Ministries, so the Ministry of the Environment, the Ministry of Industry and so on, have a say in regulations but not on the licencing or the inspection. And inspection of transportation mainly is the responsibility of the Armed Forces and policemen and so on. They check that the transportation has the proper documents and so on. Of course, technicalities like measuring if the radiation levels and so on are reading regulations is something done by the technical Body of the Ministry of the Environment, the sole authority able to perform such checks. But this is a technical advice called for by other authorities. We separate technical advice of inspection from authority which belongs to the Ministry of Transport, the police and the Ministry of the Interior.

Mr. Högberg: We and our sister authority regulate transportation of fuel whereas the Radiation Protection Institute have most all other transport of radioactive materials as they regulate its part of, we say sub-regulate, under a general law of transportation of dangerous goods and usually it's police and to some extent Customs that perform day-to-day inspections.

Mr. Willby: In the UK, the Department of Transport is responsible for the transport itself, but our licensing process on the nuclear sites ensures the proper process and making sure that what is on that transport is known both on the place where the material leaves and where it arrives.

1.8. The Dutch organization presented by Mr.

Versteeg

"In the Netherlands, the regulatory body is split up into a number of separate entities. That's where a small country can be great. We have a constitutional arrangement dividing the responsibilities and powers to the various Ministries. In principle, it would be possible to delegate the responsibility to one Body but that has never been done so far, so there are three Ministries involved for nuclear installations, that is the Ministry of Economic Affairs, the Ministry of Housing, Physical Planning and Environment, and the Ministry of Social Affairs. Of course, there are other ministries involved as well, like Interior for emergency planning, and Finance for things like nuclear liability questions. Now all these responsibilities are laid down in a Nuclear Energy Law which is already rather old, the text dates from more than thirty years ago, and the thoughts behind it are even older than that, but we are still working with that same law although some amendments have been made in the meantime. Now in the old law there is a double role. It still has the promotional part and the controlling part in it and that's also the reason that the Minister of Economic Affairs is in there. He is actually the coordinator and the first signee of the law and he is also the first signee of all the licences for the installations. From the controlling side, as you can imagine, we are not

entirely happy with it. I think things will change in the future, although in principle he cannot act against our advice. He could in practice delay things quite a bit, if he wanted to. Under the Ministry of Economic Affairs, there are two Directorates that are pertinent to the nuclear area. The first one is the Directorate for Electricity. They are concerned with energy planning policy, which is in the Electricity Law, which says what should be done in terms of general electricity planning and energy planning. Also they have the, let's say, the promotional side, or at least the utilization side of nuclear energy and they control the legal side of the licensing procedures. Then there is a Department of Economic Control, separately. They have a Bureau of Imports and Exports and they are responsible for keeping the stock of fissile material, just as a support to anyone who wants to be responsible for fissile material and, in our case, in principle this would be the Ministry of Foreign Affairs. They are also concerned with the physical security of nuclear materials and installations. And that responsibility still stems from the time that they were concerned about protecting the centrifuge technology. That's the Ministry of Economic Affairs. The other Ministry is the Ministry of Housing, Physical Planning and Environment. Specifically within the area of Environment, there are two Directorates involved. The first one is the Directorate of

Chemicals, External Safety and Radiation Protection. One of their main responsibilities is the general risk management policy. You might know that in the Netherlands we have general criteria for risk, both individual and societal risk, which apply to all kinds of hazardous activities. They started originally with liquified petrol gas but these criteria are applicable to all kinds of activities, also in the transportation area, airports, train switching yards and also for nuclear installations. Under that same Directorate is also the policy on general radiation protection for the public which would generally be derived from the Euratom guidelines. Another responsibility is rad-waste management policy. We at present have the policy of interim storage of all the waste. There is a waste facility available and the ultimate disposal option mostly studied, so far only studied, is disposal in salt domes. Then there is an Environmental Inspectorate. They are concerned with the inspection of the environmental radiation and radioactive substances. My own Directorate is under the Ministry of Social Affairs and called the Nuclear Safety Department. We are responsible for nuclear safety and radiation protection in all nuclear installations and deal with standards development, with safety assessments, and with the inspections. Also within the Ministry of Social Affairs, there is a very small policy unit concerned with the policy

on radiation protection for workers which follows the Euratom guidelines, in this case for the workers. All the inspections of radiation sources and so on are done by regional inspectorates, labour inspectorates. Our nuclear programme in the Netherlands is quite small. We have two nuclear power plants, three research reactors, one of which is the Euratom high-flux reactor which is a material testing reactor but mainly used these days for isotope production. There's an uranium enrichment facility and an intermediate waste storage facility. At present, we have some political conditions in the use of nuclear energy. We foresee no need for more electricity capacity for the coming ten to fifteen years. There is still expansion electricity consumption; but the large consumers build their own cogeneration power and heat plants and they're all gas fired, so at present there's hardly any need for more electricity, base load electricity. That means no need for nuclear capacity either. Also our present political conditions are that nuclear power plant life as specified in the Energy Plan should stop at 2004. That will be the end of the nuclear energy production of these plants. We already are living with a very old nuclear law. As I said in the beginning, we have been postponing a complete overhaul of that law ever since the early seventies when we visualized expanding our nuclear power programme and we thought we would do that as soon as decisions were

made to expand nuclear capacity. That decision was never reached and our Ministers are very difficult to convince to overhaul a law. There is no political gain nor any benefit in terms of a future nuclear programme. So, the conclusion is that we have to live with an old law with many deficiencies and drawbacks. We use mainly international standards, not only the Euratom guidelines on radiation protection, but we follow closely IAEA nuclear safety standards which we adopted after amending some of them. We have been quite busy updating individual plant licences over the last few years, old licences of the research reactors, and we also completed the re-licensing of our two power plants in connection with the major upgrading programme of these plants. Our main challenge for the coming years with the possibility of the end of the nuclear era for the Netherlands is to maintain our nuclear manpower and expertise at the level which is commensurate with a safety culture. Our energy needs are determined right now mainly by our own gas reserves, coal and that's about it. We have still plenty of gas to burn. It's a question whether that's wise or not but, that's it. Most of the decentralized generation is done by cogeneration plants and they use gas as a source."

During the discussion following Mr. Versteeg's presentation the dialogue quoted added important information.

Q: You mentioned that you are following the new series of codes from the Agency. Apart from that, do you make an effort in producing your own standards?

Mr. Versteeg: No, we found that the NUSS codes and guides structure is rather comprehensive and we did not see any need to develop our own standards. We have some specific guidelines attached to them, but they are rather limited. Most of them, at least for the nuclear installations, just follow the NUSS codes and guides. For instance, one standard that we have developed is how to apply a PSA, what sort of guidelines do you use, because you won't find any guidance in the NUSS codes or guides.

Q: What assessments have been introduced for these two plants?

Mr. Versteeg: Part of the re-assessment of the old plants, which are twenty five, thirty years old, was a deterministic assessment and also a PSA assessment at levels I, II and III and they have been completed all the way to individual and societal risk. And one of the reasons we had to do that is because this general risk policy requires all hazardous activities to show what the risk levels are.

Q: Has the PSA up to level III created any public opinion or social problems?

Mr. Versteeg: No, not more than what we had. I think that's maybe a consolation. For the nuclear installations we could show that we could live with the risk criteria that are promulgated by the Ministry of the Environment. Further hazardous activities have much more difficulties with showing compliance. For instance, if you look at the risk studies done for Schiphol airport in Amsterdam, it's impossible. And that's true for many chemical activities in the Rotterdam area, and railway switch yards, they cannot comply with it and the only exception to the rule are the nuclear installations, so from that point of view we did not have any problems.

Q: You said you are relying upon, at least partially, upon cogeneration with gas. So presumably, it's going to be a solid part of your electricity production in a number of facilities. I wonder, then, if this is going to produce or do you expect to produce, or do you have any kind of solution for instability in the national electric grid? Or difficulties, with having so many different sources of electricity?

Mr. Versteeg: So far not, but the expansion of individual producers poses maybe some problems in the future. The cogeneration has been such a success that the base load generator who has to control the grid made quite a bit of objections against the growth

of the own generators and, until last year, they had a moratorium both of building base load and decentralized generators in order to solve such problems of how can we control the grid. But, well what is a grid in the Netherlands? We are tied up to the whole European network so it's not only a local problem.

Q: You have this generalized risk criteria. Does this criteria include the Rio agreement? Have you bound yourself with this Rio agreement on CO₂ release limits?

Mr. Versteeg: They apply to hazardous activities. First they were stationary activities and other, but also transport activities. But so far they have not looked into the CO₂ aspects as yet. They might find problems as well.

1.9. The Portuguese organization presented by Mr. Marques de Carvalho

“As far as Portugal is concerned, you will probably know that we do not have any nuclear power plant, we have a small research reactor and we don't have any plans to build nuclear power plants at least in the next decade. Our electricity consumption is increasing, maybe at a faster rate than any other country around the table, but the new additional capacity will be met by hydro power and natural gas fired stations. In our case, the regulatory organizations started to be very simple some thirty five years ago and there was only one authority. Then twenty years ago, it started to be in a mess and nowadays the main regulatory aspects are under two or three different Ministries that come into the picture if we take all the spectrum of activities that have to be regulated. So, we started by having maybe a hundred experts per ministry and now we have maybe at least one ministry per expert. And we are going to have more ministries than experts in the nuclear field. This puts the thing into perspective. As anybody will expect, the Ministry of Housing is the responsible ministry for radiation protection standards and also for radiation protection inspecting activities for any radioactive facility or activity or practice. But, the Ministry of Housing has only a very limited number of people that can take care directly of technical activities. And it relies mainly

on the technical advice of a technical unit under the Ministry of the Environment, which is called DPSR. It's a former unit of the research laboratory dealing with radiation protection since the beginning of the sixties. And it's the unit where most people are still working. The Ministry of the Environment has the responsibility, of course, for the external impact of any installation, nuclear or not, radioactive or not, and also responsibility for rad-waste. The Ministry of Economy, now the Ministry of Economy but formerly there were Ministries of Trade, of Industry and so on, is responsible for overall licensing activities for the industrial activity and also for mineral mining. In Portugal, in the fuel cycle, we have mining activities and they come under the Ministry of Economy. Power plant licensing is under a theoretical licensing authority now but the law exists and if some day in the future we will build nuclear power plants, they will be licensed by the Energy Directorate with advice, formal advice, from other Ministries under their respective authority. So, the Ministry of the Environment will have to produce an evaluation of the impact of the power plant and also of the emergency preparedness plan from the technical point of view. Apart from those three ministries, emergency preparedness is also under the responsibility of the Civil Protection Agency, which is under the Ministry of Interior Affairs. Safeguards are

under the Ministry of Foreign Affairs, of course, because we belong to the European Union, and then the responsibility is more on a political level. Transportation I told you already, is mainly on the Ministry of Public Works and Transportation, but the licencing for transboundary movement of materials, not the transportation aspect, the transboundary authorization is under the Ministry of Health. Monitoring is of course under the Ministry of the Environment and comes in the Environment Directorate and it's performed technically by two units. The DPSR performs monitoring that needs laboratory radiochemical methods. And GTE, the technical unit connected with emergency preparedness performs monitoring with automatic stations, remote sensing and things like that. The question of the licencing or the supervision of the research reactor is a very old, not well solved problem. The research reactor belongs to the State and so in the past it was not submitted to a formal licencing procedure, neither to a formal inspection procedure. So, it remains unsolved. There is some kind of inspection by the Environment Ministry but it does not have the formal authority as required for commercial operations or industrial operations under the law that is written for industrial or energy producing facilities. So, it is as long as the research laboratory belongs to the State, which is now the case, there will probably be no prob-

lems, but we fear it's some tendency now to try to separate research activities from the Government umbrella and this could be a problem in the future if this tendency persists. On the question of emergency response, we have a very good agreement with the Spaniards, it's not just a question of courtesy, I think it's really a good bilateral agreement and we are now displaying a cross over of the two networks. The Spaniards will put some probes on our territory and we will introduce also some of our stations, one station for the time being, in Spanish territory. I think that for most of the subjects that come under the regulatory authority, that's all. The question of the people involved, they're very few, as I told you before, the technical unit for emergencies has three University graduates and five other people. The Department for Radiation Protection, the DPSR, twenty five University graduates and fifty other people, technical and administrative, and the Housing Directorate only has two University graduates, the other people is the normal people from the Directorate. The same happens with the Energy Directorate. They have two University people and rely on the other support technical people from the Directorate for their needs. On the international scene, the different Directorates represent the country depending on committees and so on. So, even if the Energy Directorate does not have any

objective for the time being, they represent the Ministry of Economy on all the steering committees that deal with prospects and technical aspects of nuclear power. Apart from the Body represented, there is a research establishment with about a hundred and fifty people, but since we left the nuclear option about fifteen years ago, research has been directed towards University subjects, mainly accelerator physics, transformation of materials and use of accelerators, and the research reactor as neutron sources for studies mainly. We do not produce radioisotopes in our research reactor for the time being, and we do not have plans to do that because we need rising power. The research reactor has one megawatt thermal power, a very small flux, so we decided not to continue to do some radioisotopes. Historically, we had produced some radioisotopes, but it's not worth the effort now. We are now thinking about what to do with this research establishment and that's why I was involved and will still be for about two weeks but then I will change, trying to find new ways of using these research resources. They are very limited, of course, but they could be used mainly as a University instrument for the formation of people, for training of people because we face probably a lack of trained people in the future. Most of our nuclear experts are now more or less 55 years of age and so maybe in ten years time most of the people will be retired.

There are a number of things that have to be dealt with anyway. For instance, the research reactor, even if we decide to shut it down, will cause problems for some decades and we are not so happy like our Greek colleagues, we don't know exactly what to do with the fuel. The spent fuel remains there, and as long as the Americans do not change their position, it will be difficult for us to know what to do with the fuel. I think that's all for the time being."

1.10. The Spanish organization presented by Mr.

Kindelán

The Spanish Nuclear Safety Council was created fifteen years ago and is the only Agency in Spain able to deal with all nuclear safety and radiation protection matters. I should say that our duties are maybe the most extensive in the whole of Europe. Everything related to radiation safety is under our responsibility except for safeguards, which, as in other countries, is the responsibility of the Ministry of Foreign Affairs. This very important fact, which I want to underline before starting my brief speech, is that we are not an executive power; so, every licence, every positive decision is being taken by the Ministry of Industry after receiving our report, but on the contrary, the Ministry cannot make a positive decision against the advice of our Body. So a negative advice from our Council must be enforced by the Government. Our

State Institute is a peculiar one in the Spanish political system. We are an entity absolutely independent of the State Central Administration, with our own statutes and assets independent of the State. We are only controlled by Parliament and the other control we are subject to is an advisory one. Our resources come one hundred percent from dues and fees paid by the licencees, but our budgetary expenses must be approved with the budget of the State so there is a positive intervention of the Government in our work. For the rest, we are absolutely independent. As a matter of fact, we always say, like a joke, that the Body has no bosses. Our only boss is the Spanish Parliament. The Council Board has five members plus the General Secretary. The technical people are divided into different departments, which are the Radiological Protection, Assessment, Nuclear Fuel, Nuclear Plants and Research departments and also the Legal and Administrative sub-directorates. The evolution of the personnel of the Council, started in 1982, has now stabilized at around 433 people. The technical people with a University degree are 197. The 1994 budget was of 4.7 billion pesetas (about 35 million dollars). The income comes from fees and other revenues and there are financial assets because we have had at the beginning a grant from the Government and then we now take resources from the Government for financial assets. More than half of the

budget is being spent on personnel. As I said before, I must underline, almost any competence in everything related to radiation protection is under our responsibility. Not for implementing it but for making rules for inspection, commissioning and so on. Emergency is in fact the responsibility of the Civil Governor from the executive point of view as in other countries. He is like the Prefect in France, in every province, but we have the total responsibility for technical coordination of anything related to radiological affairs in an emergency. The SALEM is the emergency centre which is a sophisticated centre in Madrid, with many sophisticated communications, in direct touch with every power plant, every Civil Government in the provinces and all the entities concerned: CIEMAT the research body, ENRESA the radioactive waste, and other bodies, and the Ministry of the Interior through which it is connected to the police and so on. We are quite happy with the performance of this physical facility which now has four years experience. Regarding our relations with different institutions, as I said before, the Nuclear Safety Council is only controlled by Parliament and of course has a lot of relations with Courts of Justice. For legal problems related to radiation safety they consult us before giving a decision. And there are six Ministries with affairs which are related to us and they need our report before taking a

decision. As I said before, any negative radiation safety decision by the Council cannot be overruled by the Government. As in this country there is a quasi federal situation, the Autonomous Regions have some competencies which are also supervised in everything related to radiation safety by our Body which allows the Autonomous Bodies to act always under our supervision."

During the discussion following Mr. Kindelán's presentation, the dialogue quoted added important information.

Mr. Hulst: Did you take decisions by majority vote?

Mr. Kindelán: We didn't use the majority vote up to the moment. In my short experience, there has always been a unanimous vote, I don't know before.

Mr. Caro: We always reached a kind of consensus to decide what to do and what not to do, it is rather a system based upon a consensus.

Mr. Kindelán: There must be three for having a quorum. And for us to be appointed, there must be an agreement of three fifths of the Parliament.

Mr. Högberg: I have a question related to the SALEM communications room. I do not

see any link to the public news media from SALEM.

Mr. Kindelán: The SALEM has a duty to inform the Council.

Mr. Högberg: Who is responsible to inform the public news media?

Mr. Kindelán: The Council must inform the Civil Protection Directorate, not the SALEM, which is just an operative technical installation to get information between the actors. It is the Council who informs the Civil Protection, in the Ministry of the Interior. Our Body is just an Advisory Body, so the important thing here is to have the right information at all times and to pass this information on to the responsible executive and these are the Civil Governors and the Ministry of the Interior acting for the population. In every Civil Government there is an information office to inform the people, radio and television, etc.

Mr. Högberg: Yes, but I ask this question on the basis of some earlier experience when, let's say, you have, for example obligations to inform your international colleagues, directly from SALEM. And there are different methods to be discussed. Public news media is interested in other things. Apart from radiological conditions, colleagues are interested in the technical threat

and I have some doubts about the ability of this Civil Protection Directorate to discuss this. I would mention that in Nordic countries, we have very fast communications between, regulators and in the early years we communicated quickly to our neighbour countries, but not so quickly to our news media. Unfortunately some of our neighbouring countries immediately communicated with the news media and so the news came from neighbouring countries and so you started to hide this, how we got this information from abroad and so on, I mean this is a very tricky business.

Mr. Caro : Let me say that as Mr. Kindelán stated, the SALEM is specifically for the technical part of an emergency. But, in parallel with that, there is a group in his Department for informing the media and it works immediately. This is our experience so far. It gets immediately in contact with the media, with at least the national papers and TV networks and all that.

Mr. Naschi : Do you have responsibilities relating to non-ionizing radiation?

Mr. Martín: The first thing is that we have a clear frontier with non-ionizing. We have a very clear definition and non-ionizing radiation is not included in our responsibilities.

Mr. Naschi: And who is responsible?

Mr. Martín: Well, generally speaking, the Ministry of Health, but probably in the near future, more detailed regulation covering the new aspects of this new technology coming up should be addressed in more detail. This is my personal opinion.

1.11. The Swedish organization presented by Mr.

Högberg

First, a few words about the energy situation in Sweden. Our total consumption of energy is about four hundred terawatt.hours per year. We consume a lot of electricity, one hundred and forty terawatts per year, which is about fifteen megawatt-hours per year and capita. This is the next highest in Europe, I believe, Norway being higher. Fifty percent is nuclear, almost all the rest is hydro power, a little is other fuels, and this shows how nuclear dependent we are. In fact, we consume even more nuclear electricity per capita than France. As you know, there is an energy policy debate going on in Sweden. The present energy policy decision which is not legally binding in any way, says that we should phase out all nuclear power by the year 2010, provided that there are no adverse effects on welfare and occupation in industry nor on the environment, for example in carbon dioxide emissions. I think it is easy to see that these goals are in conflict with each other. Government and Parliament have realized that. They set up an Energy Commission a year ago. It's due to report on future energy options in mid December. I think it's a good guess to say we will have at least some nuclear power even after the year 2010. Our nuclear installations are twelve reactors being erected from 1971 up to 1985; and one nuclear fuel factory. There are a few things I would like

to point out. First, we have had an intermediate spent fuel storage facility in operation for many years. It's a wet storage facility in a rock cavern at the Oskarshamn nuclear site. Originally, we entered into the reprocessing option but abandoned it, and we now go for direct storage of spent fuel. In all probability, there will be an encapsulation facility located near in direct connection with the interim storage facility. It's presently in the pre-design stage. We expect the licensing application, say, in three to five years. A site selection process is going on for disposal in crystalline rock at about four to five hundred metre depth somewhere in Sweden. So far, attempts to gain local acceptance have not been very successful, but it is still an incipient process. For low and intermediate level waste, we have final storage facilities at the Forsmark nuclear site. This is also a system of rock caverns which has been in operation for several years too. In addition to operational waste from reactors, such as ion exchange resins and things like that, it also takes all waste from hospitals and research facilities, and it can be extended to take decommissioning waste also. Very low level waste is disposed of by burying in shallow land at several of the nuclear sites. I think most of you have heard about the Studsvik research facility. As with all facilities, which seems to be a common problem, Government lost interest in its financing. Now they have sold it to a group

of private investors so it's a privately owned company with a small minority interest of the Government. Finally, I think most of you know we are deeply involved in nuclear safety in Lithuania, helping the Government both as owner of the plant, responsible for legislation and for the regulatory body. The money there comes from the Swedish foreign aid budget and we actually spend about as much in Lithuania as we spend on regulating our own facilities. The legal basis for regulation is the Law on Nuclear Activities. It actually dates back to 1956 but it has been revised very recently. The regulatory authority under that is the Swedish Nuclear Power Inspectorate, the SKI, to which I shall return shortly in detail. Then we have a law on financing of future costs for spent fuel and nuclear waste which regulates the financial responsibilities of nuclear utilities with regard to future spent fuel costs. They have to pay about two Swedish ÖREs, one point five French centimes per kilowatt-hour into Government managed funds. And then their jointly owned spent fuel and waste management company can draw on these funds for approved activities. We also have the regulatory responsibility under that law. Finally, we have a radiation protection law, which also is old and the regulatory authority there is the Swedish Radiation Protection Institute. Basically, we divide our responsibilities so that we regulate the

technical and organizational safety of the plants to see that nothing comes out, essentially. The Radiation Protection Institute regulates what may come out in normal operation and what should be done if something more comes out. They have all the, should we say, advisory responsibility for emergency planning outside the plant. The executive emergency management responsibility outside the plant rests, as in several other countries we've heard about, with the County Administrator who here is the Prefect in the French system. We will advise them on the technical threat if we enter into some type of accident sequence. Of course, they can get primary information from the plant but we would provide them with a secondary opinion on the technical threat, preferably in terms of estimated source terms and the Radiation Protection Institute will advise them as to the consequences and the appropriate actions to be taken in the prevailing weather conditions. The law on nuclear activities defines what needs licensing. For major nuclear installations, the final first licensing decision is taken by the Swedish Government. It's a Government decision but then the rest of the supervision and decisions on all modifications and so on are delegated to the Inspectorate. It designs the full responsibility of the licensee for the safety of nuclear activities including safe handling and final disposal of spent fuel and nuclear waste. It

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establishes the legal basis for control of nuclear materials as components under non-proliferation treaties we have entered into. It defines public information and obligations of the utilities at each reactor site. The law prescribes that there should be a safety committee in the local municipality to which the plant is required to give all information on safety matters. And we are frequently requested to inform them too. And as I said, it establishes the legal authority of SKI. The Swedish regulatory strategy is not based on detailed prescriptive regulations. It's more what we call a safety case, similar to some other countries. A licence to build and operate a nuclear installation is based on a safety case presented by the licensee in the safety analysis report which is reviewed by SKI. And, in doing so, the criteria used are, of course, international and well established criteria, mainly those in the US 10 CFR regulations. We have a few regulations of our own but it's up to the utilities if they prefer to use, for example, German regulations. The safety case should demonstrate not only that the minimum acceptable safety level is achieved but that safety is as high as reasonably achievable. And, when the licence is granted, the safety case is regarded as the safety level the licensee has contracted to at least maintain, as a condition for permission to operate the installation. We have a programme for recurrent safety reviews so the safety case is reviewed about every ten

years based on deterministic methods and now we have planned specific probabilistic assessment at least to level I and to level II, for a few plants. We are now proceeding to have level II for all plants whilst at the same time making level I much more detailed in the second round. As we said, the licensee has full responsibility for his nuclear installations and we shall review and monitor how the licensees live up to this responsibility by making our own independent and well founded assessment of the technical safety status on nuclear installations, and on the quality of their internal safety work. We shall promote and initiate measures to improve safety and we shall promote maintenance and development of a higher level of scientific and technical competence in safety related areas. And as I said, we shall actively inform the public on safety related matters. I will not go into details of our organizations but look at our resources instead. We have three main regulatory programmes. Reactor Safety is the biggest. And the administrative budget for that is about twenty seven million Swedish Crowns. Divide it by about 1.4, and you'll have it in French Francs; divide by ten and you get it in ECUs, I think. And in that area we also contract our research for about the same amount. Nuclear waste safety is quite a substantial part too. The staff of SKI is about one hundred people. On the reactor side we have about one inspector per reactor or other installation

and that makes about fifteen in the whole of the Department of Inspection. They are not resident. They work from our office but travel frequently to sites. But the rest of the Department, of the Office of Reactor Safety, is made up of about twenty people divided into Departments for the main technical areas: Reactor Technology, which means Reactor Physics and Thermo-hydraulics; Safety Assessment including both probabilistic and deterministic assessments; Structural Integrity and Interaction between Man, Technology and Organization. I will just end with saying that, first, we are a very small organization. We have about one expert in each area, which makes us vulnerable and we have to depend on consultants and occasionally turn to organizations such as GRS to help us with major assessments. A few words about our budget. Sweden is a bit unique. In all areas, we have very small Ministries and very independent agencies. This goes back to the seventeenth century really, and the Ministries are mainly involved in new legislation, budgeting, setting general goals but not in day-to-day decisions except on very major ones such as licensing of major plants. Our budget is determined by Parliament on a proposal from Government and that is our scope of work in very broad terms, and once determined, they also determine the fees that the utilities pay, so our budget doesn't come from taxpayers money but from their electricity bills and

basically the Ministry of Finance treats us as every other agency when the time comes to cutting down in the present budgetary situation in Sweden. The basic approach to our safety is that to achieve a high level of safety is a matter of in-depth understanding of control and two sets of processes. Physical and thermal processes in the reactor and processes in organization, especially with a small staff, as we have to focus on the quality of the safety work, the safety culture of the organizations. At present, we are seeing more positive things here and there especially with our oldest reactor, Oscarshamn I, which we are in the final stages of licensing or should I say, re-licensing, after a three year outage and we have found more than we should in safety deficiencies at the reactor. And, finally, to make a point. I'll give a final figure to all of us who came here by air. There are actually empirical quantitative data on the importance of a safety culture in airlines. A factor of 42 between national airlines in accident frequency. You can discount the former Soviet Union, but it's still more than a factor of 10 and they operate the same type of airplanes built to the same type of international technical safety rules, operated under the same type of internationally agreed safety rules."

During the discussion of Mr. Högberg's presentation, the dialogue quoted added important information.

Q: If a utility does not agree with your decision, does it have the right to appeal and how?

Mr. Högberg: As in all decisions of Government Agencies, if it goes against the applicant, he can appeal in our case to Government. It has never occurred for power reactors. We have had one appeal on storage of foreign nuclear waste at Studsvik where Studsvik appealed and won. We were more restrictive than the Government on allowing foreign nuclear waste into the country for extended periods.

Q: I have recently heard that your old MARBEEKEN plant is going to be re-used for thermo-hydraulic investigations and research. Is that correct?

Mr. Högberg: Yes, the Studsvik Company is at present working on that proposal to see if they can get financing for an additional MARBEEKEN international project.

Q: The question on the interface between the Radiation Protection Institute and the SKI, is it correct also that the Radiation Protection Institute is the authority as far as the radiation of workers is concerned?. Is that correct? How do you balance or trade off inspection and workers protection?

Mr. Högberg: Correct, I should imagine then they deal with all occupational health

and safety and radiation protection for the general public including all kinds of harmful agents including ultra-violet and radiation from the sun. We have to cooperate closely. Basically we work in that, we inform them early when we want to require increased inspection activities and then they go to the utilities and ask them how do you minimise the dose for that. But, the basic agreement is that they will never challenge our judgement, it is really needed. It's more a matter of finding the best technology to do that.

1.12 The British organization presented by Mr.

Willby

"In the United Kingdom, responsibility for the safety of workers and the public from risks presented by all work activities is, since July, the responsibility of the Secretary of State for the Environment. However, this responsibility is discharged through an independent Health and Safety Commission. The Health and Safety Commission consists of twelve members. It has three drawn from industry, three drawn from Trade Unions, one drawn from local government and then it has five drawn from independent sources, be they academic, etc. The trade union ones are nominated by the Trade Union movement, the industry ones are nominated by the industrial movement, the local government one by local government and the independents are nominated by Government. The Health and Safety Commission is, if you like, the overall supervisory body, the policy making body, but its day-to-day activities are carried out by the Health and Safety Executive. The Commission is only twelve strong actually. The Executive, which employs about three and a half thousand people, is the main body which carries out the operational work. I'm sorry, at this point, I'll just introduce an Advisory Committee. In order to perform its duties, the Health and Safety Commission is advised by a number of Committees, be they on construction, be

they on mines, there's one on ionizing radiation and there's also an advisory committee on the safety of nuclear installations, it has a similar function to the American ACRS, which is chaired by an eminent independent chairman and which again has twenty members nominated by Trade Unions, industry and independently nominated by the Commission. The whole position is complicated in that the only aspect of safety which the Secretary of State for the Environment does not answer for is nuclear power. So that when it comes to Nuclear Safety, the Health and Safety Commission reports not to the Secretary of State for the Environment but, on that one subject, to the Secretary of State for Industry and thus the Advisory Committee which normally advises the Health and Safety Commission, can also contact the Secretary of State for Industry directly and do often proffer unsolicited advice to him. He doesn't necessarily ask for it but he does frequently get it. I know this, I happen to also provide the Secretaryship, I'm the Secretary to ACSNE, so I try to keep the organization running. Turning to the operational side, the Health and Safety Executive, in having this operational responsibility for protecting workers and the public from all risk associated with all work activities, has a number of discrete divisions. It has one very large division which looks after all industrial, agricultural safety, which also has teams of doctors in it, look-

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ing at industrial health and disease problems. It has another Directorate looking at mines. It has another division looking at railways, another one looking at off-shore, and so on. And, of course, the one that we're interested in today, is the nuclear one. At present, it also has three, what we term, policy divisions. The policy divisions are responsible for, in our terms, setting standards, introducing legislation, producing guidance, basically setting up the system which the operational Inspectorates then operate to. Two of those divisions, off-shore and nuclear, currently contain within them their own policy functions. Within the nuclear division, we basically split down into six, it was six areas, now five. We have one inspection arm looking after the reactors within the country. We have another one looking after chemical plants, processing fuel, waste, but also looking after the activities of our defence colleagues. And we have a further one which carries out technical engineering assessment, and a further one which, for want of a better word, I call the science assessment, but this includes things like fault studies, fault analyses. Then we also have two policy branches which I actually head for the moment. Again, one of them sets policy for the Health and Safety Executive. We set national radiological protection policy, we negotiate in Europe, we introduce the legislation, we provide the guidance and then the

detailed inspection against what we have set up is then carried out by the individual inspectors: the off-shore inspectorate if it's off-shore, the industrial one if it's looking in industry or hospitals, the nuclear one on nuclear sites. And, of course, on the radiation side, one of our principle advisers is the National Radiological Protection Board which is headed by Roger Clark which many of you will be familiar with. And that, of course, on that side, is the principal adviser I have. I also have what we term Regulatory Policy whereby we look after things like licensing, emergency arrangements, incidents, incident reporting, analyses etc. We also have nuclear safety research. Our organization is charged by Government with ensuring, in the words of the Secretary of State, that the country has adequate and balanced nuclear safety research programmes. But don't ask him to pay for it. We have to then get the money out of industry. I also have responsibility for the international side that we have: international relations, aid to Eastern Europe because again within aid which the United Kingdom is giving, our organization takes part in regulatory assistance to Eastern Europe: some work which we have actually been doing in conjunction with our Belgian colleagues. And of course we act as the General Secretariat, carry out all the resource planning, hiring, firing, all those sort of things for the inspectors. So, that's basically how

we're set up. The part of the paper which is just covered up, if we remove it, shows what is going to happen next July when, following a comprehensive review, the whole of the British Senior Civil Service is being reduced by twenty five percent. Twenty five percent of the senior managers are disappearing. All in the interests of increased efficiency. I can assure you it's nothing to do with saving, of course!. And you will see that what has happened with us is that the current policy functions which I had are, in fact, being stripped out of the Nuclear Safety Division and are moving into other parts of HSE where in fact they're going to be brigaded with hazardous chemical industries, gas, pipelines, things like that. And the nuclear safety division will in fact come down to three branches, one looking after strategy and resources, one looking after inspection and one looking after assessment. A few words about the size of us. We are two hundred and ninety strong. In the Nuclear Safety Division we have 290 people of whom 162 are professional engineers and scientists occupying the position of inspector. I say that because being an inspector gives you special powers which the others do not have. We have a budget each year of about nineteen million pounds, excluding research. Research is extra on top of that. And we operate largely in a manner which will be familiar to you from **Mr. Hulst** and **Mr. Högberg** in that we largely rely upon

the licensee too. We set up a framework, we set up an overall standard and then we expect the licensee to produce a safety case to describe to us how their organization is going to work to set the minimum standards which they are going to apply. And then we hold them to that like a contract and if they fall down against it, then, as many of you will have seen from the media, we will often prosecute them. We've had quite a major prosecution in the last few weeks of one of our operators. So we do hold them to what they tell us. But they basically tell us what they're going to do, how they are going to operate. We look at that, we encourage them to do better if we don't feel that they're doing good enough or we say "yes, we will accept that" and then we of course go in, monitor and inspect against it. I think that's probably, in view of the time, all I'd like to say but of course if anyone has any questions, I can also describe in great detail what we do in emergency arrangements and how the police take charge."

During the discussion following **Mr. Willby's** presentation, the dialogue quoted added important information.

Mr. Vuorinen : I believe that, in all countries, regulators have to rely very much on operators. But, well, I have a question for you. What is your responsibility? I mean, let's say, if something goes wrong, do you

believe that you are not responsible at all?. Please try to explain.

Mr. Willby: Yes, I'm very certain we have a responsibility. We certainly have a responsibility to the public in the United Kingdom. That's what they expect, and, in fact, we're not immune. A few years ago we had a major fire in a football stadium in the United Kingdom. And our organization found itself in Court, being prosecuted because we were charged with not carrying out our inspection effectively and thus, if you like, contributed to the harm and the fire which ensued. The Judge actually said "no", we had carried out the inspection correctly, we had used our discretion. He thought with hindsight we might have used the discretion differently but he accepted that we had acted in good faith at the time. So, I'm very conscious that if we fall down, we can in fact be brought before the Courts ourselves and pay the penalties.

Mr. Vuorinen : I put this question for that reason, well, even if I said that we all have to rely on the utility, but I would put my words in a different way. We do not rely, but we have to start, we try to learn the areas where we can rely and we have a responsibility not to rely too much. Only on the areas where we are convinced that we can rely, that they are doing things correctly and they are working safely. That is my inter-

pretation, so that, exactly what you said, we may also be caught if we don't fulfil our responsibilities properly. Of course, as regards property damage, that is for people, third parties and so on. Utilities normally have complete financial responsibilities and so on but one must be very careful how much to rely on utilities.

Mr. Högberg: I fully agree with what Antti Vuorinen said. The English language has a fine distinction between responsible and accountable which doesn't exist in all other languages, certainly not in Swedish. We are certainly accountable to the public and I'm not sure how much neglect we have to show in Sweden before we are brought to Court, but we are certainly accountable and I will be fired long before that. But, we've been called to hearings before Parliament and so on, so we really feel accountable. But we have an interesting part in our legislation. It's not written in the formal law but it is written in the guidelines that were in the same Bill as the Law. These guidelines are in the Swedish legal system, more or less binding on the Court when they interpret the Law. And it says very clearly that the licensee is obliged to take steps to improve safety if something has occurred, even if it's not in the Regulations of the Safety Authority, so its responsibility extends beyond mere compliance with the Regulations.

Mr. Kindelán: Who and how are the people from the Civil Executive nominated and also what is your relation with the National Radiation Protection Board?

Mr. Willby: The Executive are appointed by Government from the Civil Service, so that they, our present Director General, for example, came to us as a Deputy from another part of the Civil Service and they control the three and a half thousand people who work for them. The National Radiological Protection Board are basically our principle advisers when it comes to matters of Radiological Protection. On some matters they are statutorily bound to give us their advice, which they then have to do free of charge. For example, if there is any European Directive which has radiological connections, they then have to proffer their advice on that Directive free of charge. On other occasions we pay them, as we do any other contractor, to give us advice so that the responsibility, the relationship is quite a strange one. For much of the time they are acting as our contractor, on other occasions they are acting as an unpaid adviser but it is quite plain to us that we have a special relationship, they are our main adviser on Radiological Protection. Not the only one, I mean we also take advice from people actually working in the field. We have an advisory group based upon hospitals, looking at the medical aspects, we have also

taken advice from people working in the industry and there have been occasions when we have not taken the NRPB's advice because we have decided that, when we actually came to apply it in a practical way, it would not necessarily lead to the safety standards that we were seeking. But, by and large, we obviously listen very carefully to them. That is the position, but we have the statutory responsibility for protecting the public and workers from ionizing radiation, and they are our principle advisers.

Mr. Kindelán: The Nuclear Safety Division is under the Commission?

Mr. Willby: Yes. So the Nuclear Installations Inspectorate constitutes that part of the Nuclear Safety Division which is not the policy.... I am the part which is not the Nuclear Installations Inspectorate. All the policy functions come not in the Inspectorate, they are part of the Division. The Inspectorate consists of that part which carries out the technical assessment and which carries out the inspection of sites.

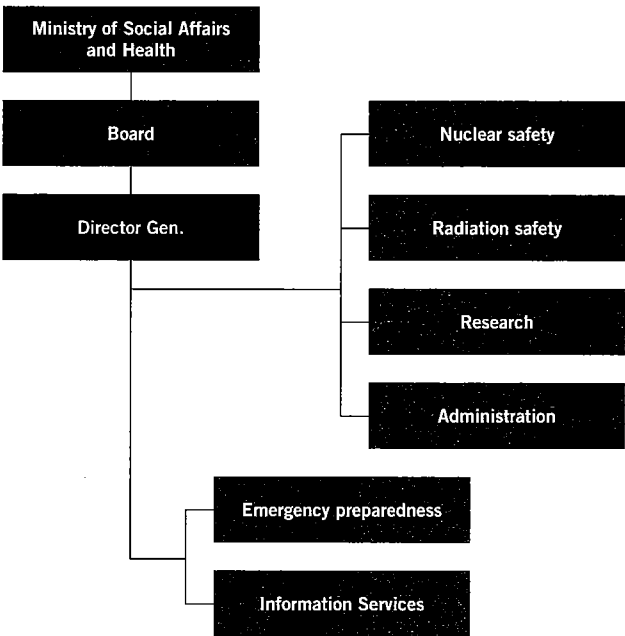
Referring to the licensing of final waste repository, the formal position is that any radioactive waste repository will be licensed by ourselves and currently we have two low level waste repositories, one in Scotland and one very close to Sellafield, and those are licensed installations which we inspect. The

responsibility for granting the actual authorization to dispose of radioactive material is the responsibility of what will, from next April, be called the Environment Protection Agency. That Agency is going to collect people together who are responsible for rivers, who are responsible for radioactive pollution, etcetera. So there are two Agencies involved. They grant an authorization allowing disposal to take place but of course, they need to look at a safety case which is looking at the safety of the facility way into the future. We are licensing the facility as an operational facility, so we are interested in the safety of the facility while it is being operated because during that period we say the waste is effectively being stored rather than being disposed, and only at the time that the repository is closed off is it then finally decreed to be closed from a licensing point of view. So the two have to work together, but we actually licence it.

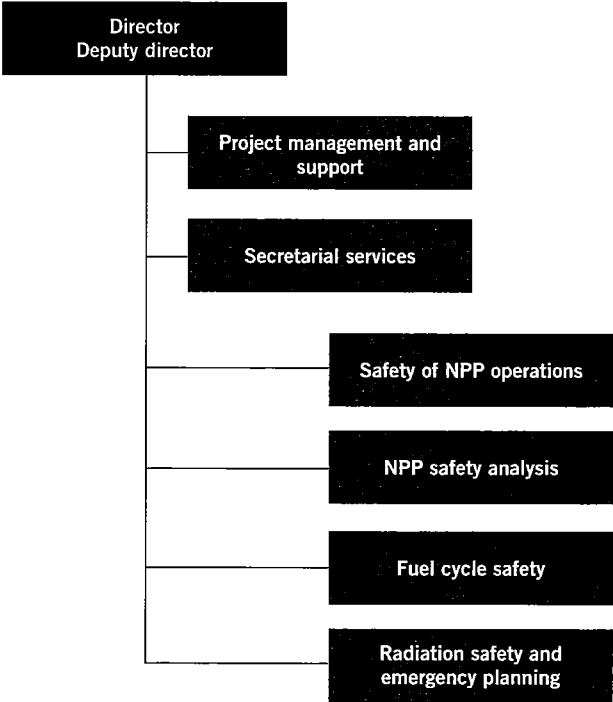
Presentations on regulatory organizations



Finnish Centre for Radiation and Nuclear Safety

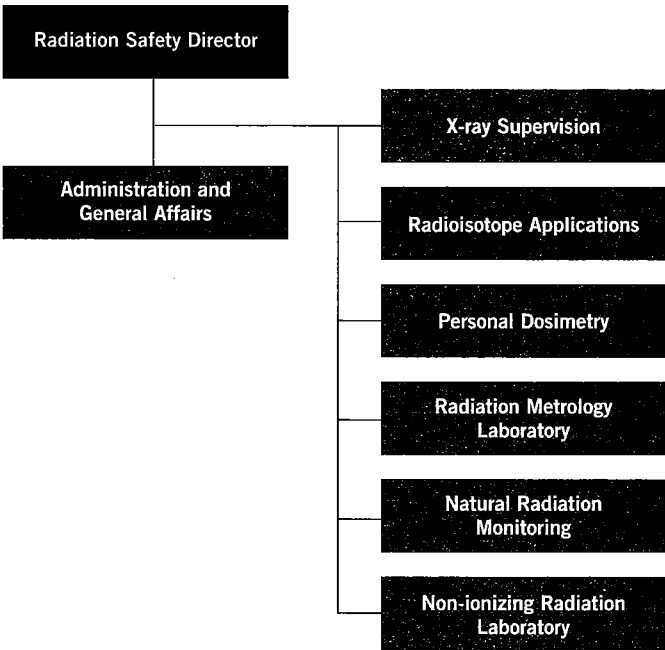


Nuclear Safety Department

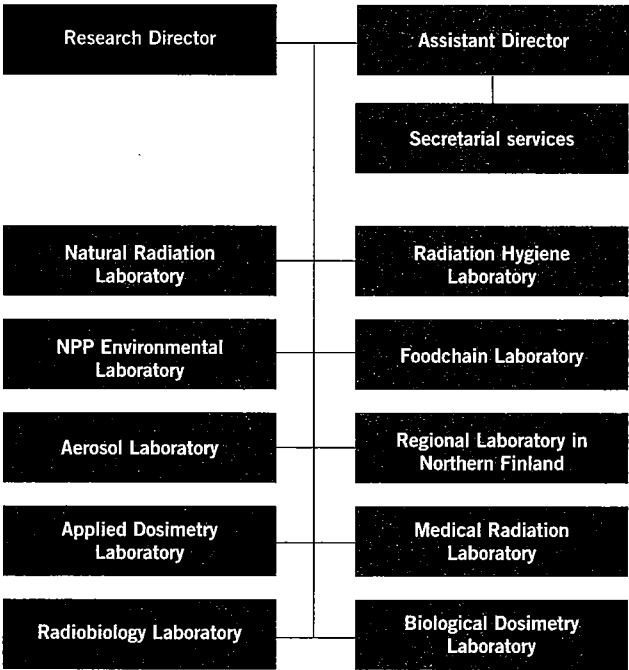




Radiation Safety Department



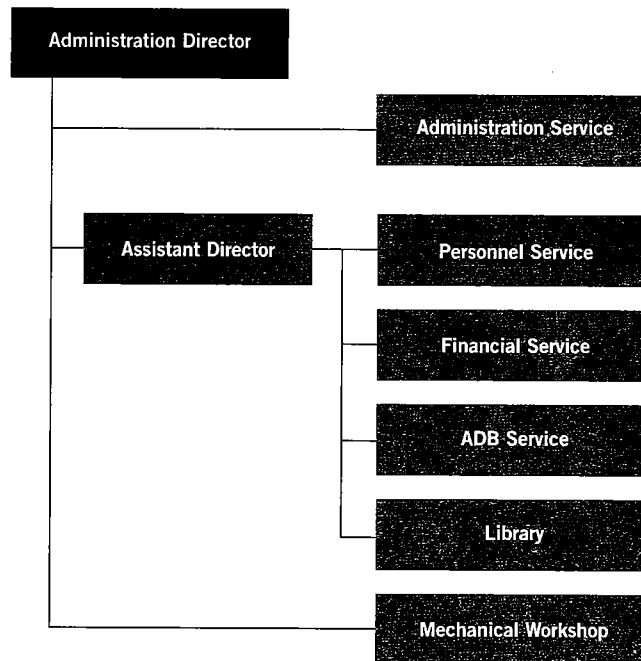
Research Department





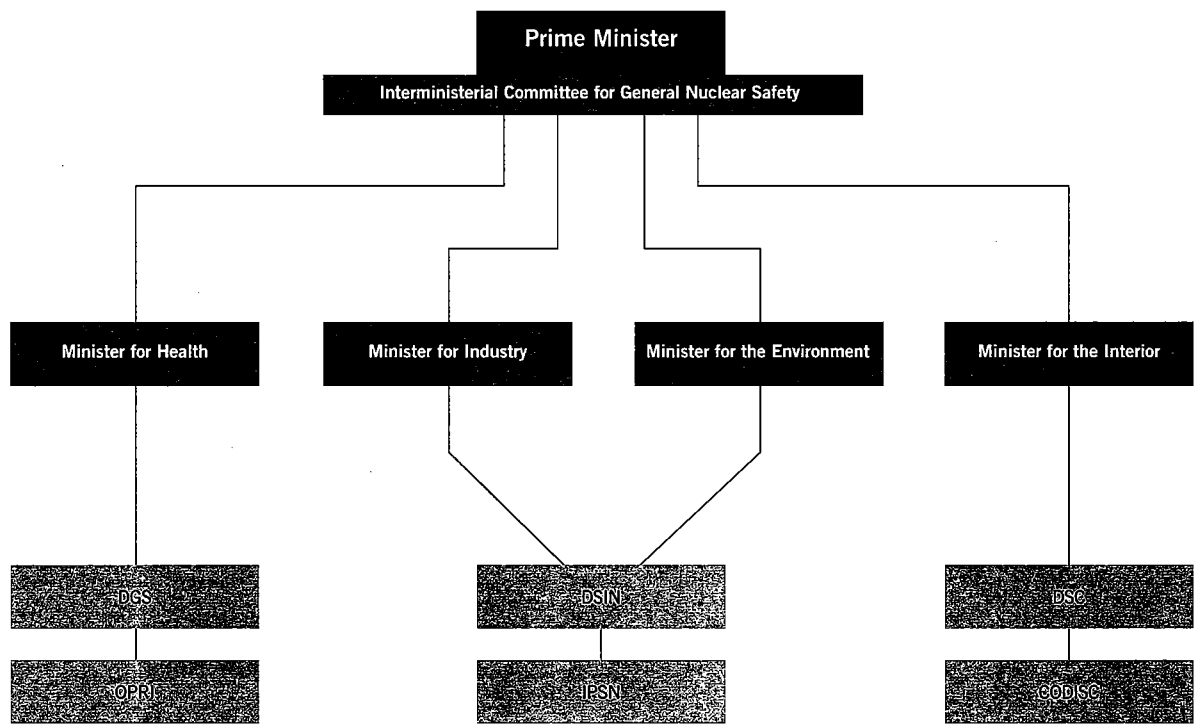
FINNISH CENTRE FOR RADIATION AND NUCLEAR SAFETY

Administration Department

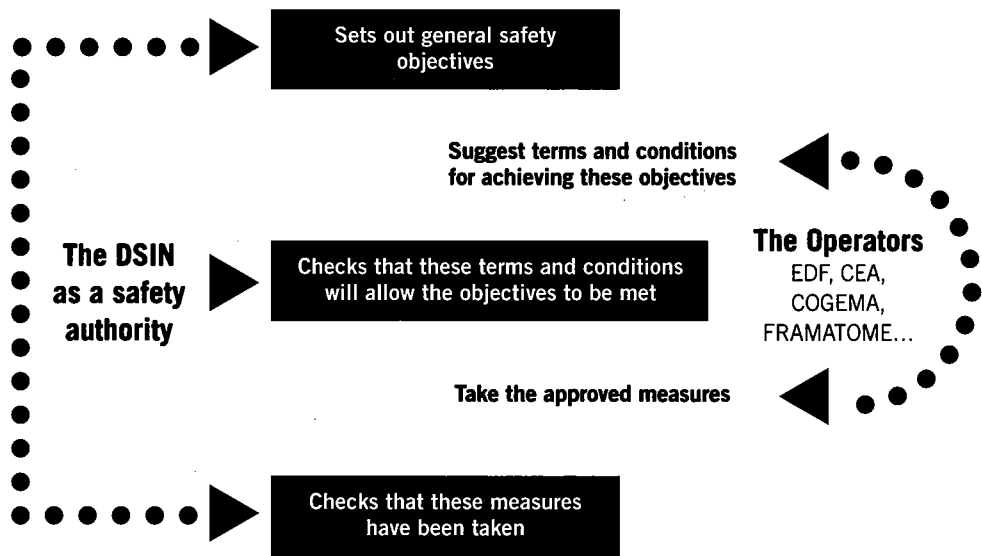




General Nuclear Safety in France



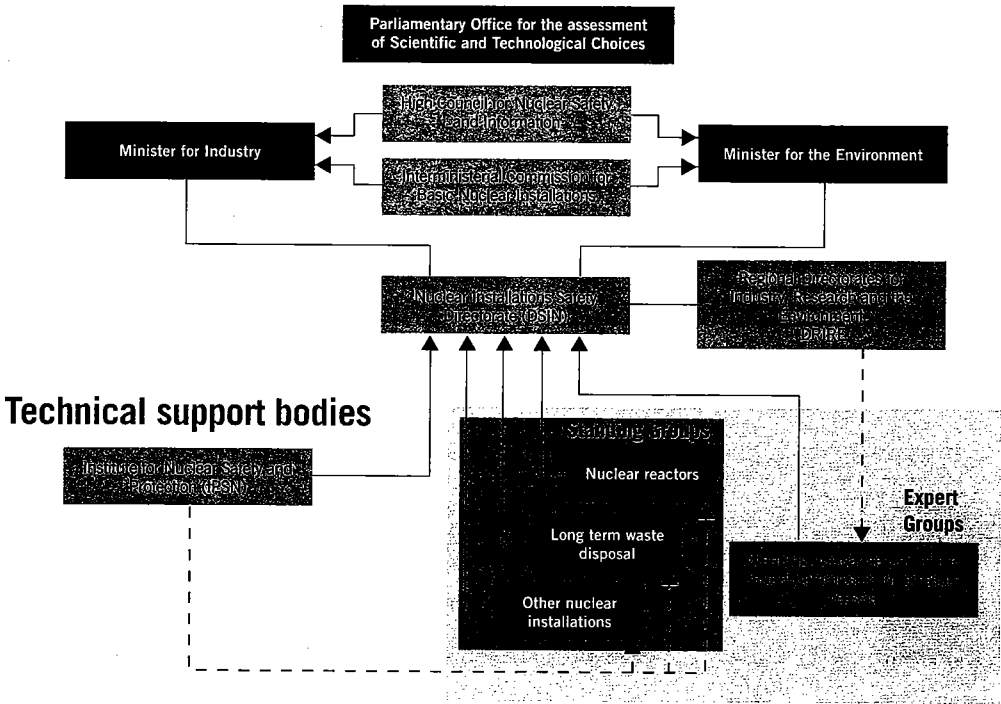
Nuclear Safety: What are the responsibilities?





Inspecting nuclear safety in France

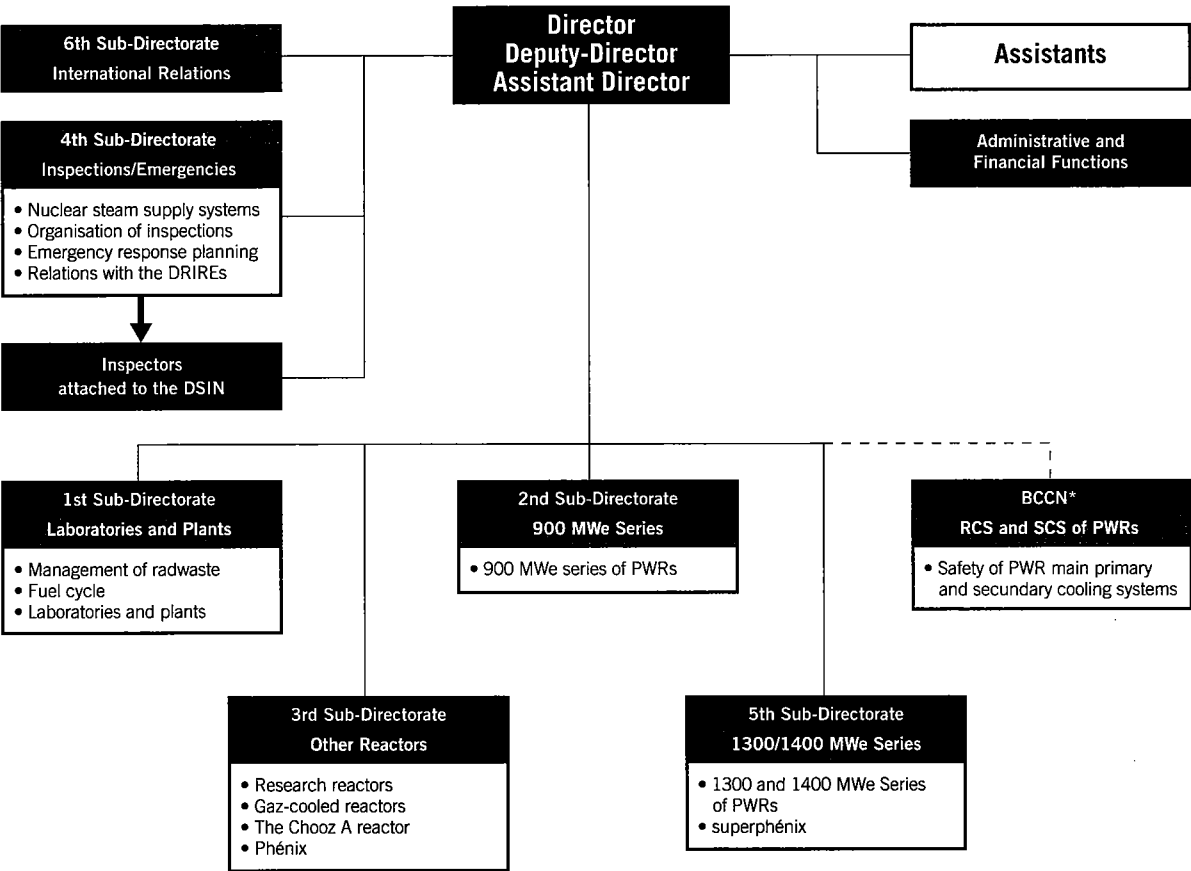
Government bodies



—→ Recommendations - - -→ Reports



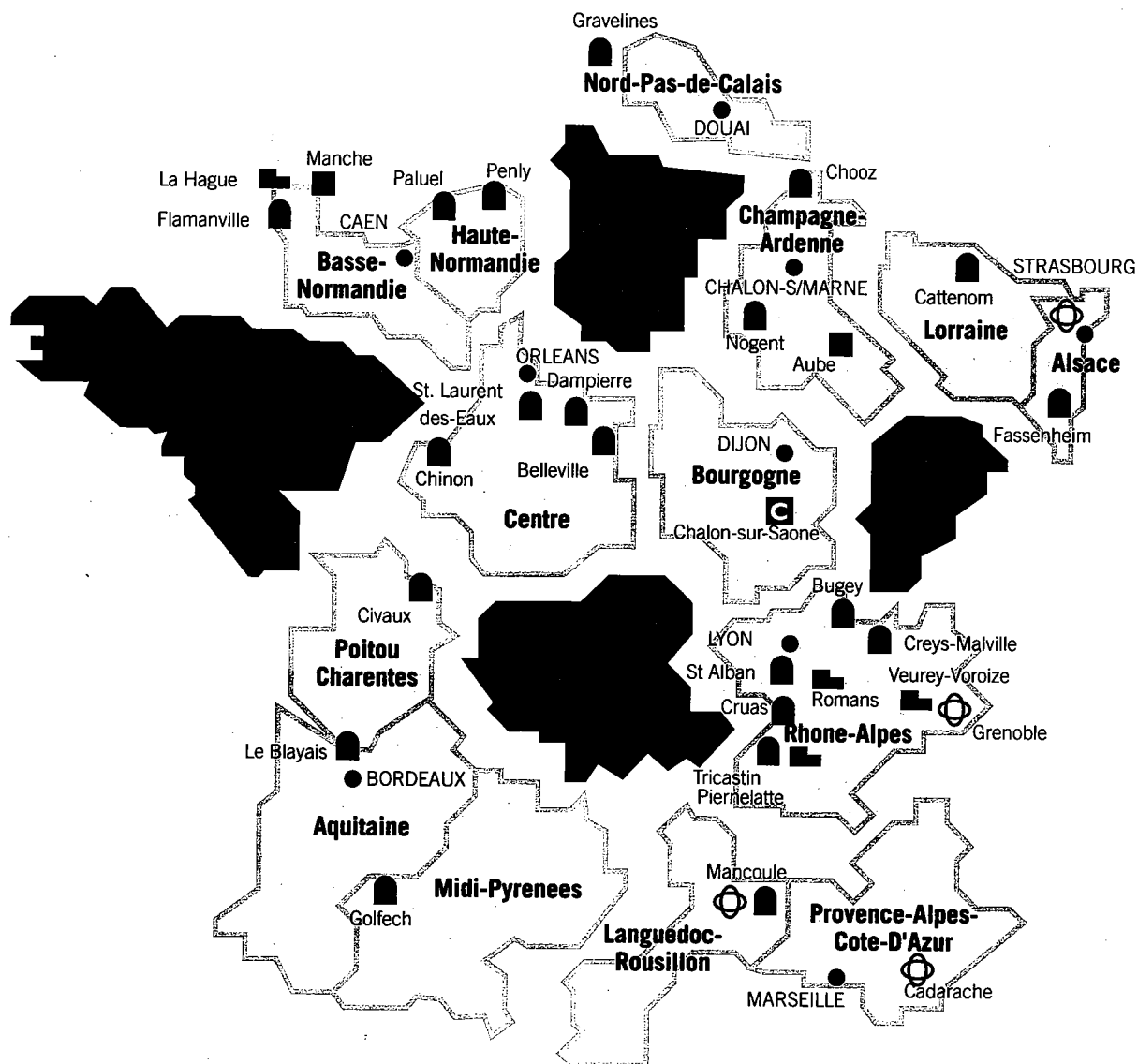
Organisation chart of the DSIN as of 1st January 1995



* Bureau de Contrôle des Chaudières Nucléaires de la DRIRE BOURGOGNE



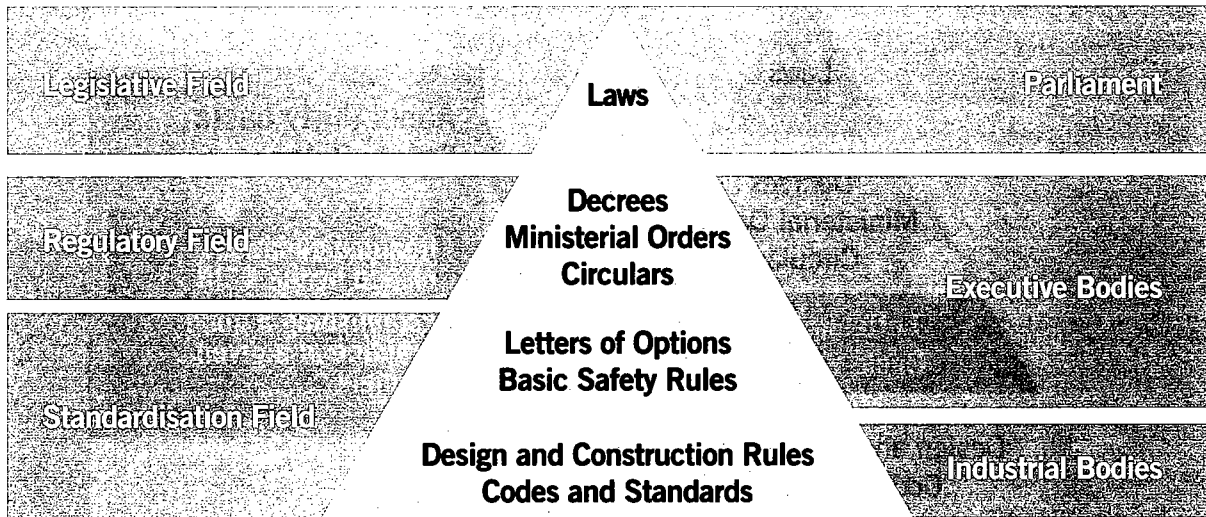
The Nine DRIRES' Nuclear Divisions



- Waste Repository
- Nuclear Power Plant
- ⊕ Nuclear Research Center
- Fuel Cycle Plant
- Nuclear Steam Supply System Manufacture

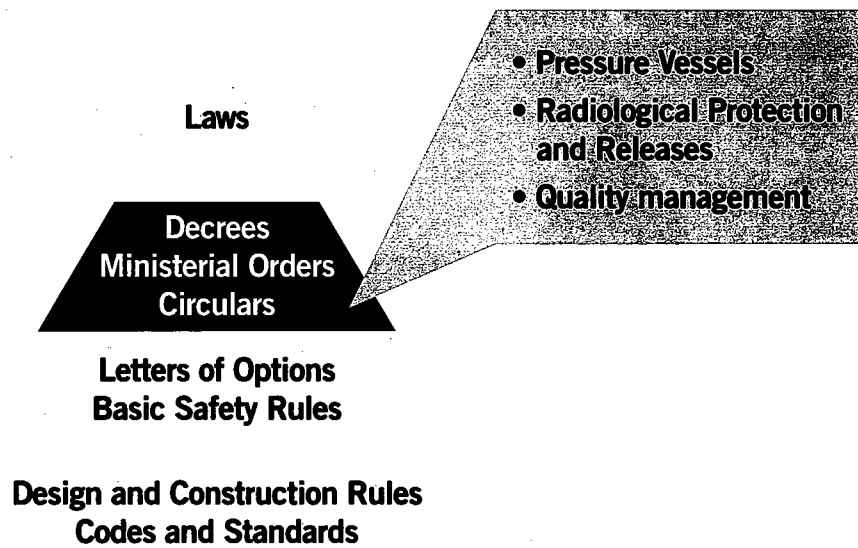


The Regulatory Pyramid



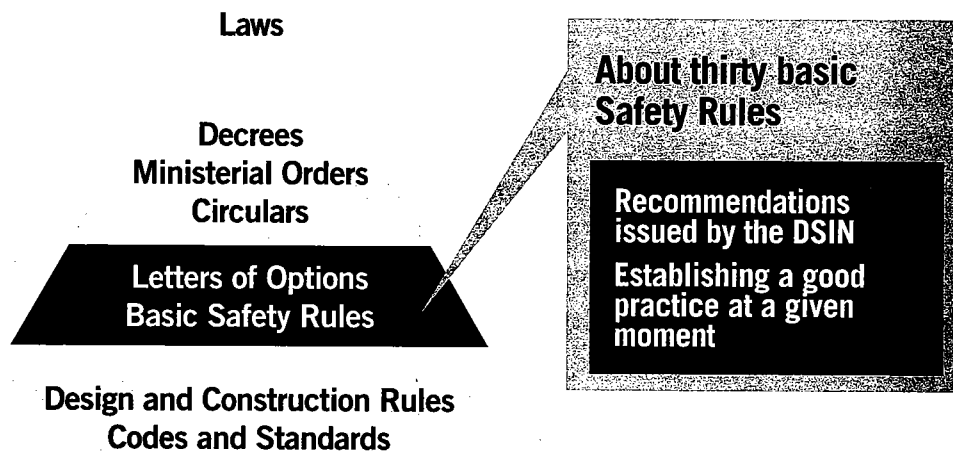
Ministerial Orders

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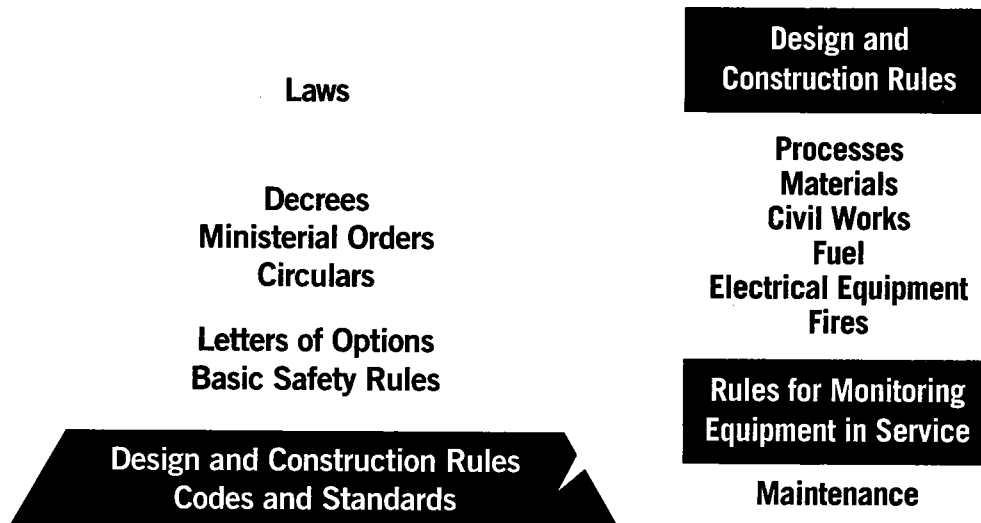
Basic Safety Rules



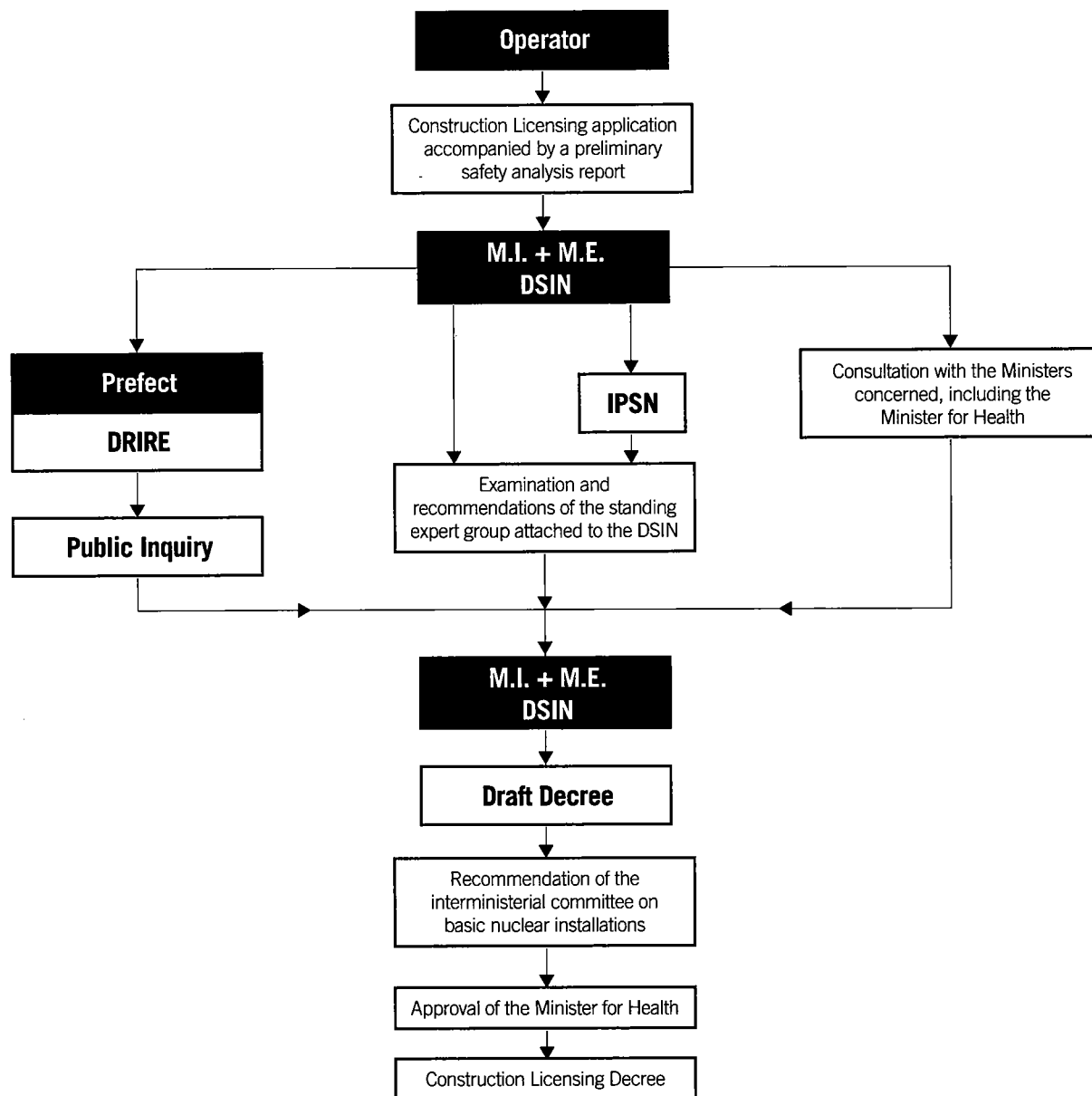
Codes and Standards

Drawn up by the French
Nuclear Industry

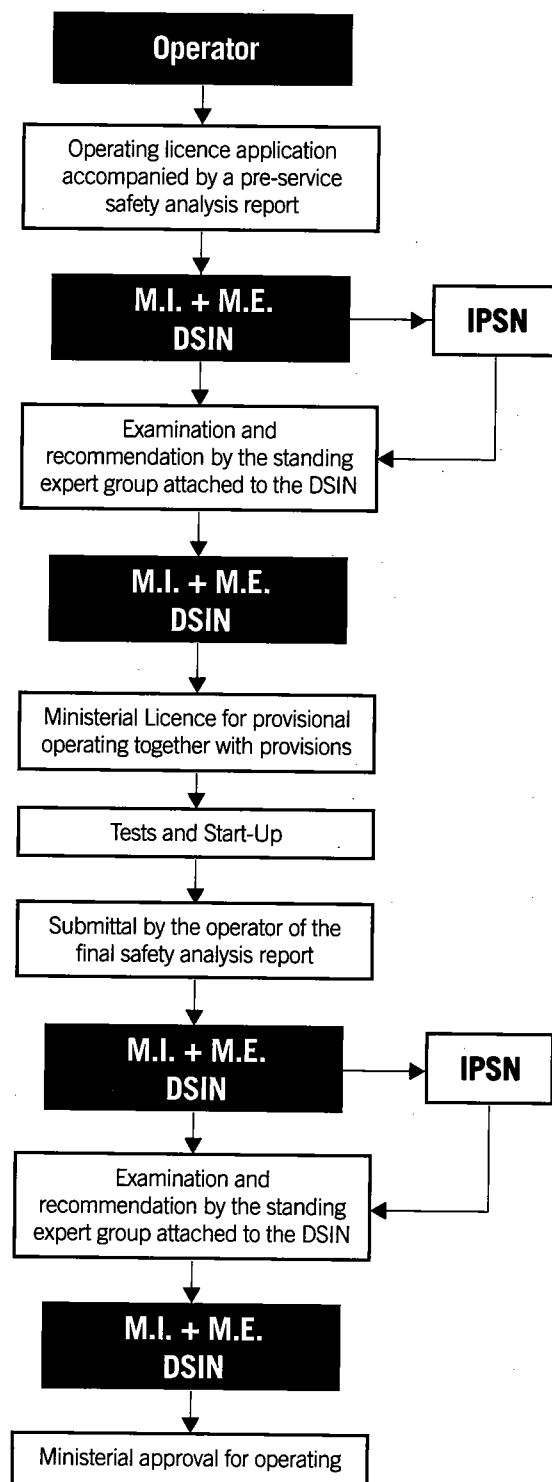
submitted for approval
by the DSIN



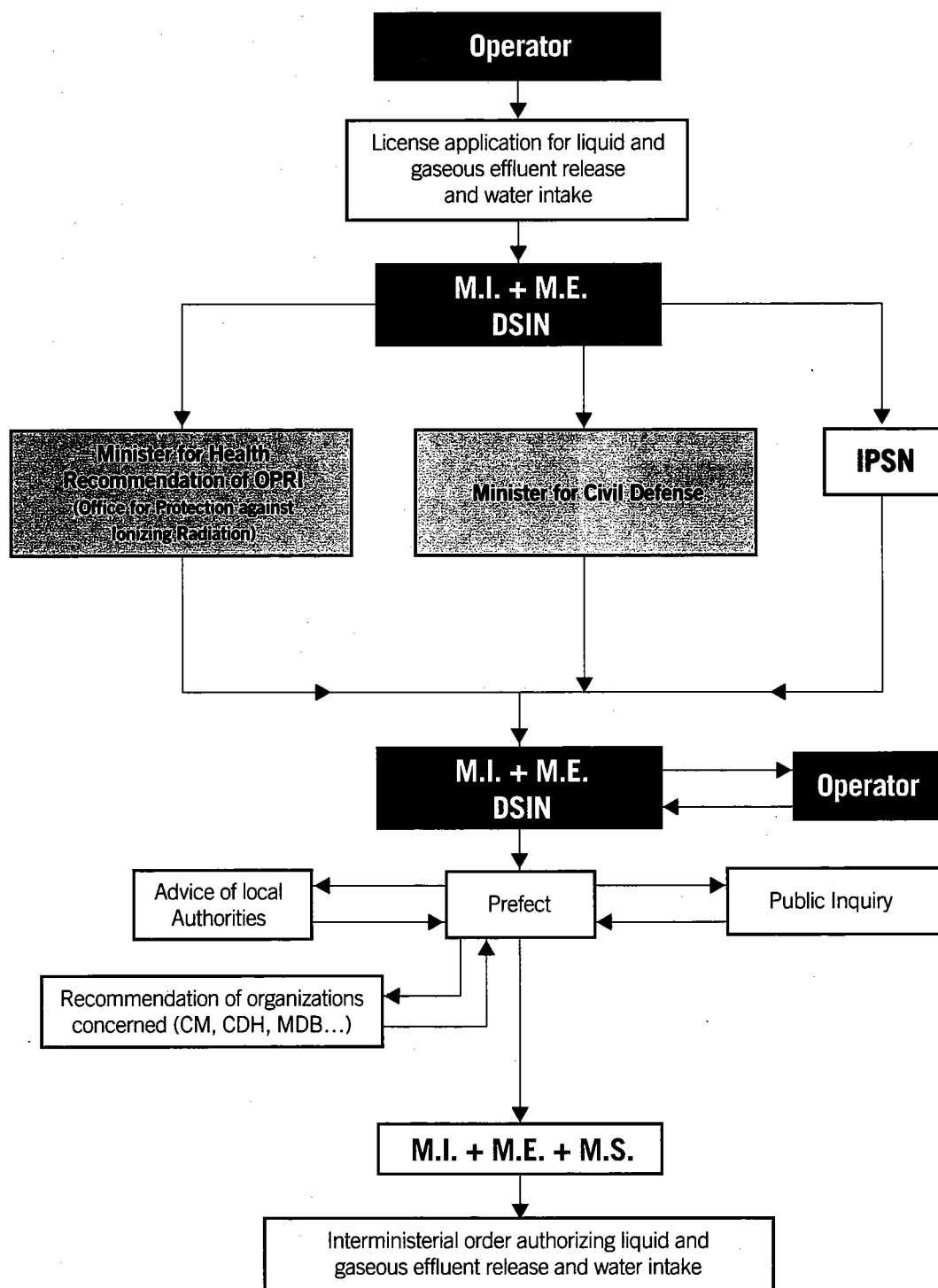
Construction licensing procedures for basic nuclear installations



Licensing procedure for operating basic nuclear installations



Licensing procedure for liquid and gaseous effluent release and water intake



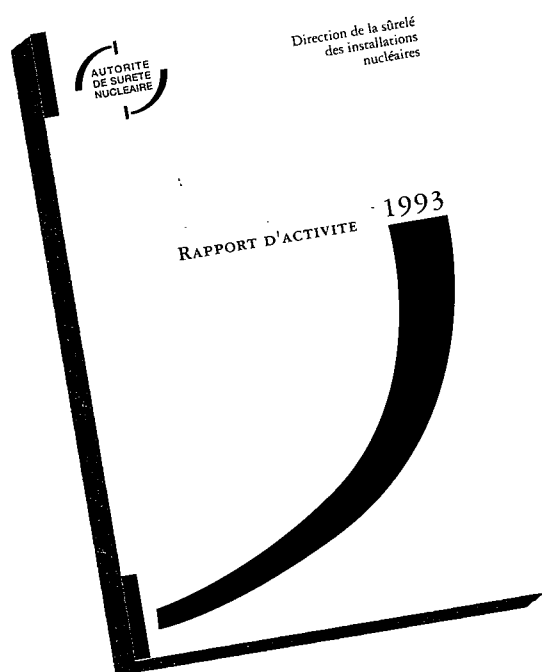


Emergency response planning

3 main functions of the DSIN and the DRIRE

- 1 Assist the Prefect**
(local government representative)
- 2 Help to disseminate information**
(Press releases, MAGNUC,...)
- 3 Ensure that the measures taken by the operator are adequate**

The DSIN's Annual Activity Report



Policy and organisational set-up

Regulations and procedures

Installation monitoring

Action by DRIRE

Emergency response plan

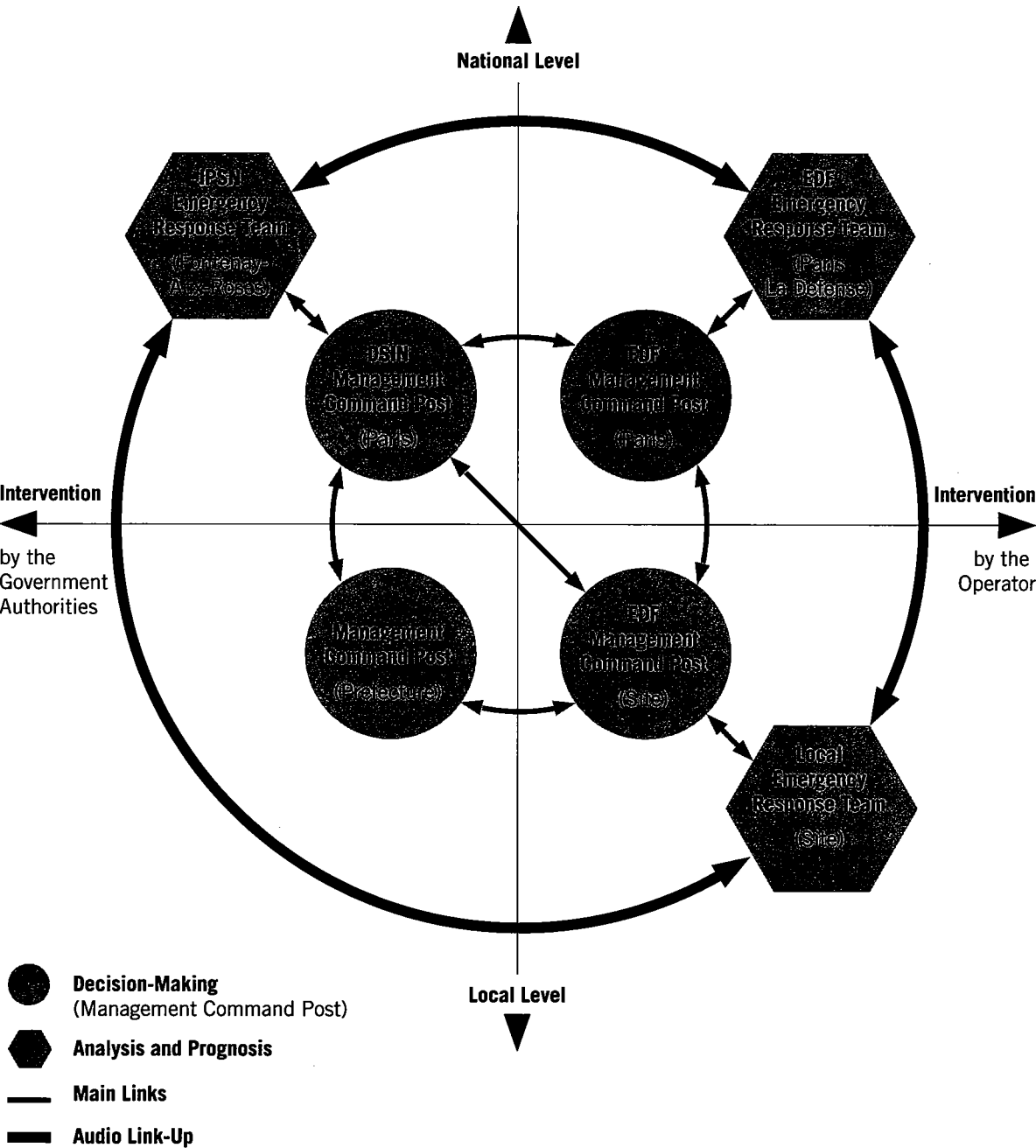
Communication

International relations

Operation of nuclear installations



Emergency response planning for an Electricite de France reactor





The Nuclear Safety Bulletin



Every two months since 1978

Operating of nuclear installations,
licensing, incidents...

Inspections

International exchanges on safety

Current affairs

DSIN international relations

**International
Co-Operation
between
safety bodies**

Knowledge Sharing

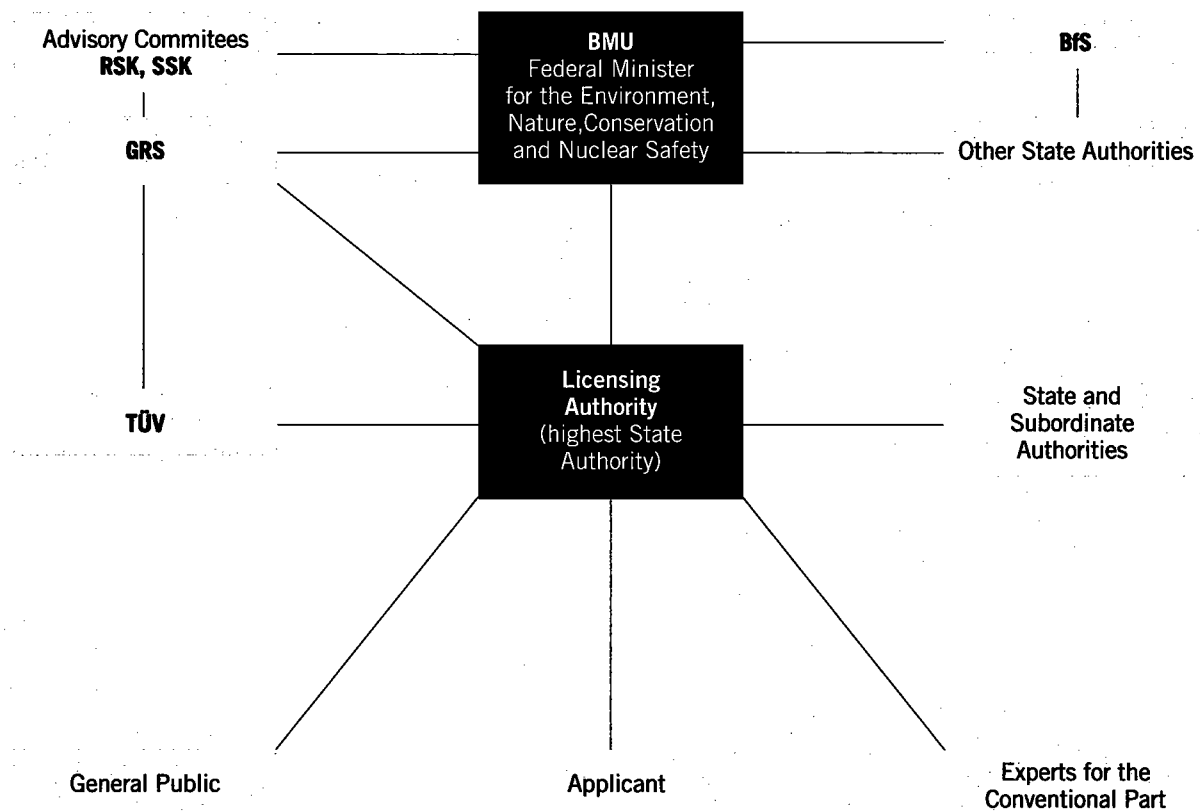
Cross-Border Relations

Exporting Know-How

Bilateral Exchanges: 15 countries
Multilateral exchanges: IAEA, OECD, EU



Nuclear Licensing and Supervisory Procedures



An outline of A.N.P.A. Italian National Agency for Environmental Protection

The Italian nuclear regulatory authority, well known by most of you as ENEA-DISP, has become, since January 1994, the Italian National Agency for Environmental Protection.

As a matter of fact, law no. 61, approved on January 21st 1994, established activities and structures for environmental protection in Italy that can be summarised as follows:

- Promotion of research on the physical environment, pollution, industrial risks and ecosystem protection and conservation.
- Building up of a data bank of environmental and monitoring data.
- Technical advice to public authorities about pollutant acceptability levels, air, water and soil quality standards, waste management strategies and technologies; methodologies for environmental monitoring and controls, risk factors control, natural environment and protected area conservation, reclaiming of polluted areas and hazardous situations.
- Cooperation with international organizations, in particular with the European Environmental Agency and with the European Statistics Institute (EUROSTAT).
- Promotion of research and diffusion of environmental sustainable technologies, of production systems and products with reduced environmental impact, including activities related to the labelling of products (European logo of ecological quality) and auditing activities in the environmental field.
- Verification of the efficiency of environmental standards and regulation in producing expected results.
- Technical and scientific support for the activities related to risk analysis and environmental impact assessment procedures.
- Control on the activities related to the pacific use of nuclear energy and radiations.
- Other relevant activities related to environmental protection.

The structure charged with these tasks is the National Agency for Environmental Protection (ANPA).

As a parallel rule, the above mentioned law foresees the creation, for each of the Italian regions, of a Regional Environmental Protection Agency (ARPA) charged with monitoring and control activities in the territory.

The new Agency staff is up to now the same of ENEA-DISP (about 300 persons), that constitutes the basis of ANPA with its organization and structures. It is foreseen that other personnel from ENEA (at least 150 persons) and from other public institutions that operate in the field of environmental analysis or controls (about another 150 persons), plus personnel from commissions and groups that have operated up to now at the Ministry of the Environment will join the ENEA-DISP staff to constitute the new Agency.

By law, ANPA must develop the activities above listed at the national (and international) level, with the obvious task of coordinating regional agencies (from a technical point of view). Furthermore ANPA must supply the necessary advisory and support activity for the Ministry of the Environment and for other governmental and public authorities.

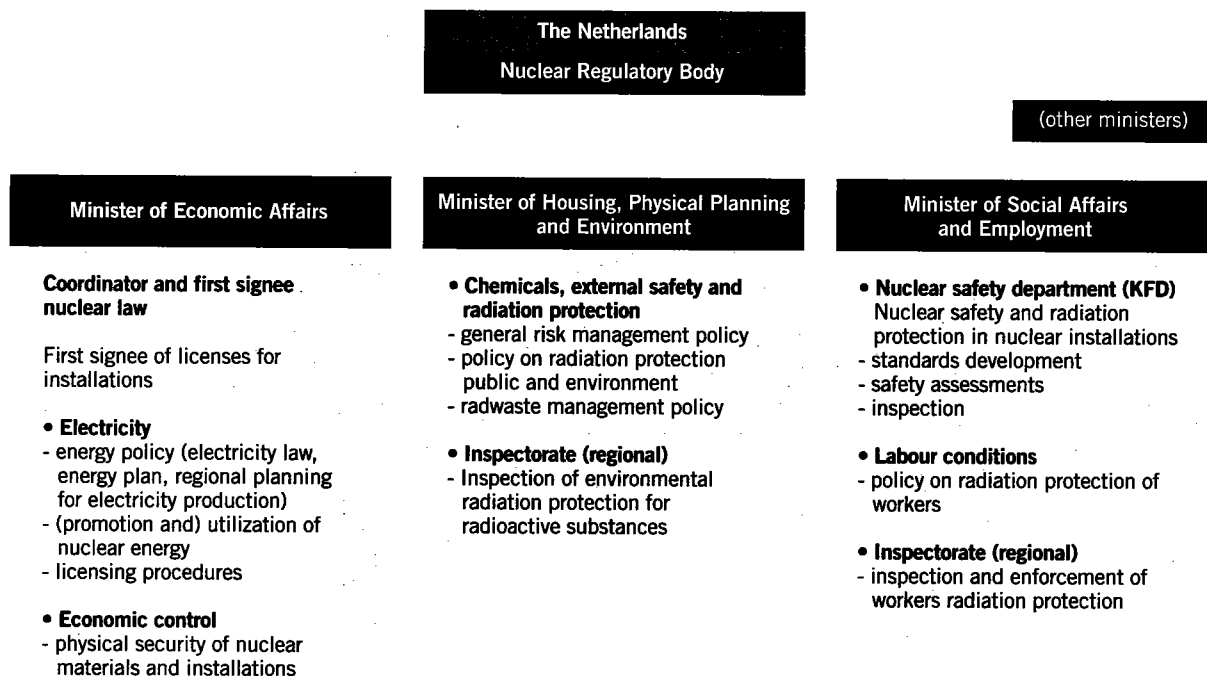
The nuclear regulatory activity in this way has become a part of much wider activities for environmental protection but, while in other fields, the agency has essentially a supporting and advising role, in the nuclear field it has preserved the full power of the original regulatory organization.

As far as nuclear programme are concerned, it is well known that in Italy the nuclear moratorium is still in force and, therefore,

there are no programs for the construction of nuclear power reactors. The regulatory body activity is now aimed at managing the decommissioning activity of shut down plants and to control the non-energetic nuclear activities.

Of course, an important part of the activity is devoted to following the development of new reactors, for which we perform analyses and evaluations in collaboration with engineering companies, and to the assistance to the Eastern Countries essentially in the framework of TACIS and PHARE EEC programs.

The Netherlands. Nuclear Regulatory Body



Nuclear Programme

Nuclear Programme in the Netherlands

- 2 nuclear power plants (60 MWe bwr and 480 MWe pwr);
- 3 research reactors (euratom 50 MWth HFR, iri 2 MWth, ecn 30 KWth LFR);
- Uranium enrichment facility (2500 swu/a).
- Intermediate waste storage facility

Political Conditions

- No need for greater (nuclear) electricity capacity
- Nuclear power plant life in energy plan < 2004

Nuclear energy law > 35 years old

Use of international standards

Individual licenses updating

Nuclear power plant upgrading programme

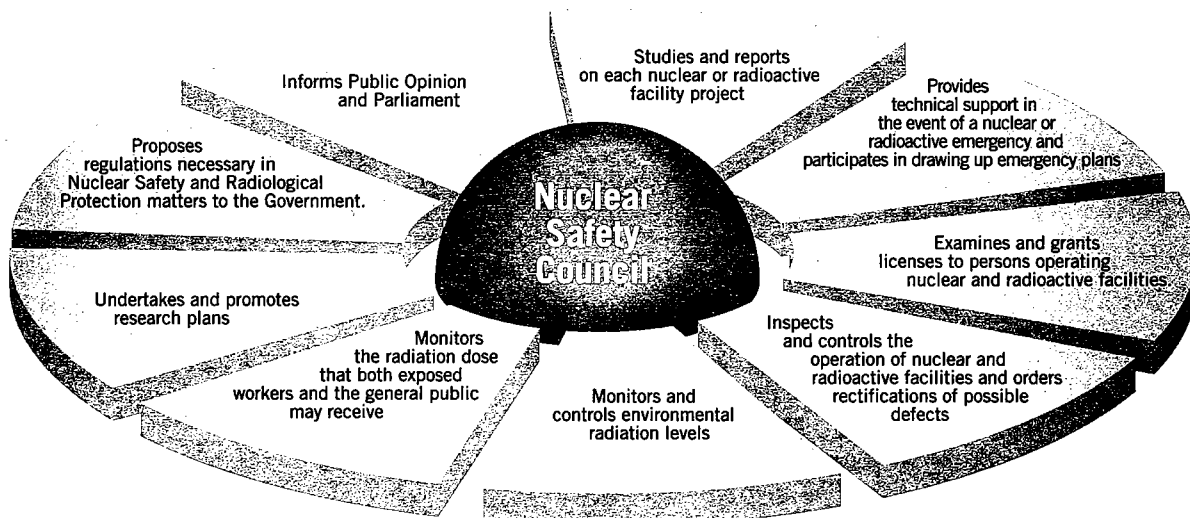
Nuclear manpower and expertise

The Nuclear Safety Council

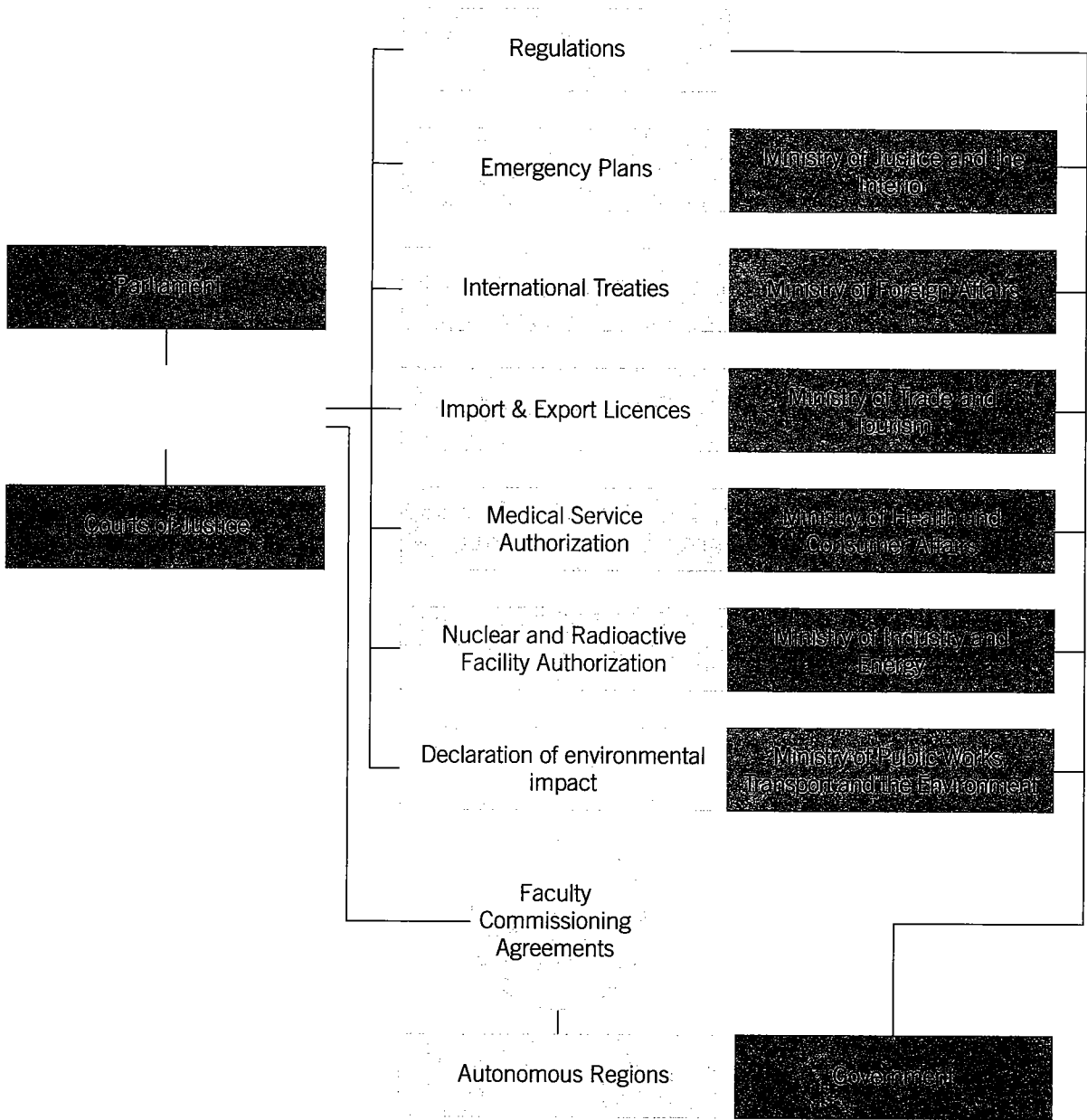
- Created: April 1980 (Act 15/1980).
- Set up: March 1981
- Statute approved: June 1982 (R.D. 1.157/1982).
- Statute modified: June 1989 (R.D. 643/1989).

- Only agency empowered in nuclear safety and radiological protection matters.
- Public law entity, independent of the State's Central Administration, with its own legal status and assets independent of the State's.
- Has its own properties and financial resources mainly from fees for services rendered.
- Formed by people fully guaranteed with regard to the specialities of nuclear safety or radiological protection in which their independence and objectivity of criteria are particularly valued. Their appointment and dismissal is subject to the Congress of Deputies' approval.
- Obligated to submit half-yearly reports on its activities to the Congress of Deputies and the Senate.

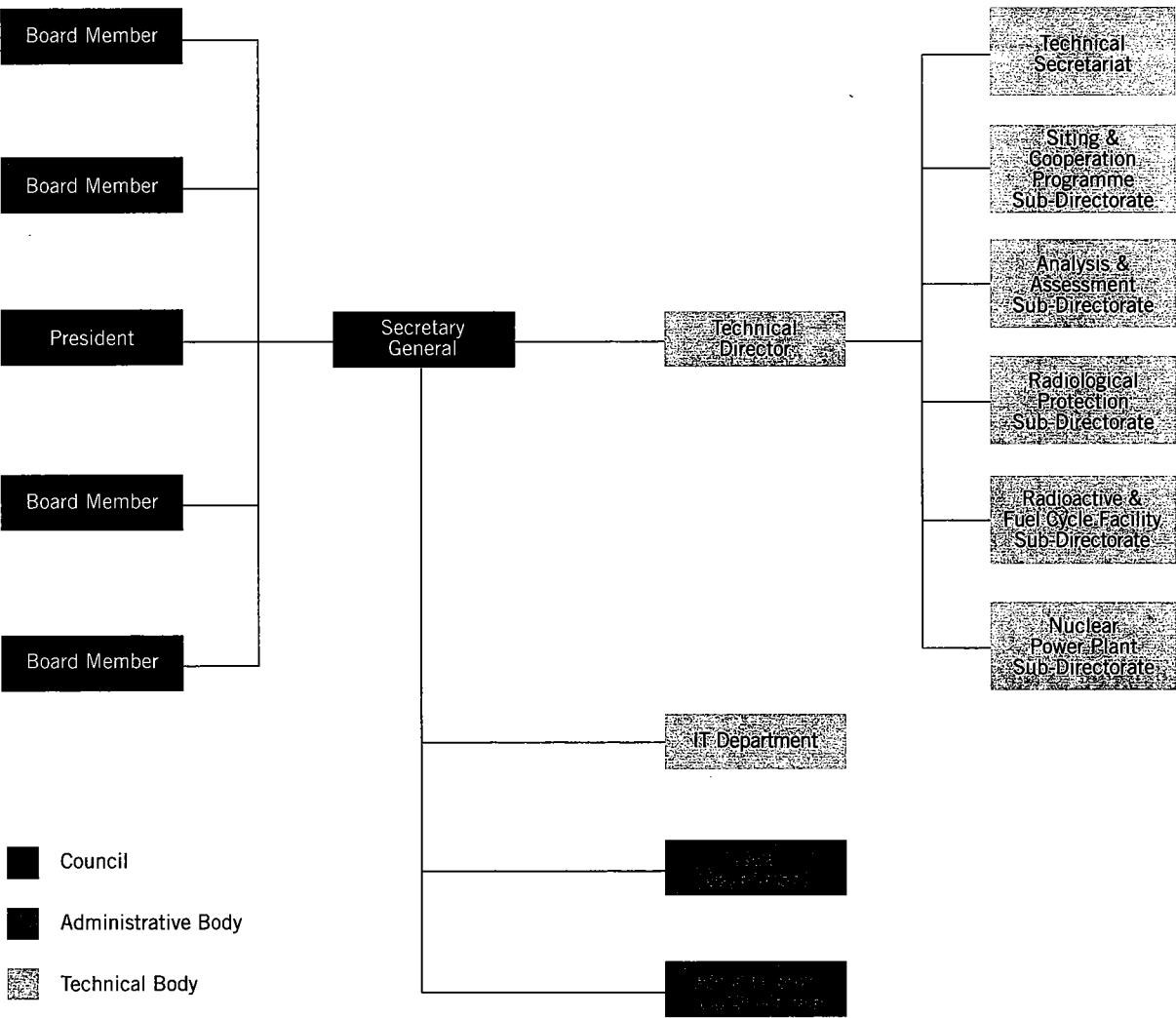
Main functions of the C.S.N.



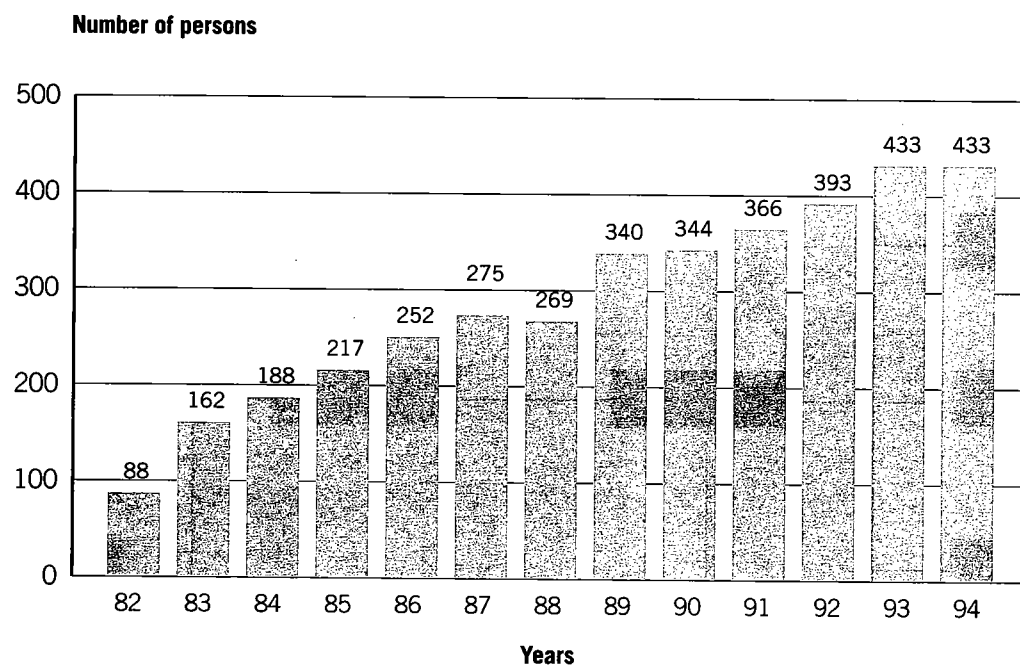
C.S.N.'s Institutional Relations



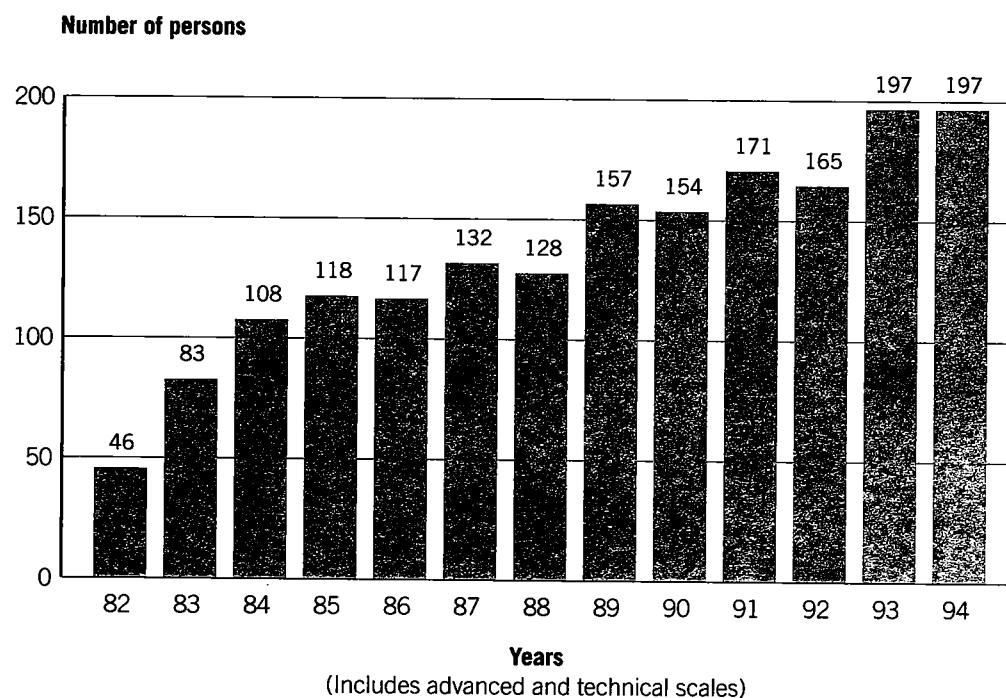
CSN Organization Chart



Evolution of Nuclear Safety Council Staff. Data at 31 December each year

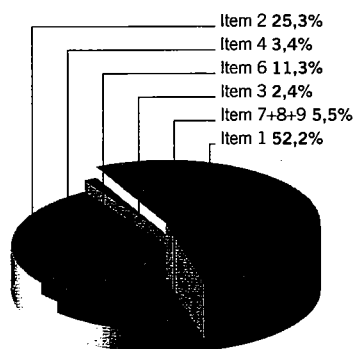


Evolution of Nuclear Safety Council Technical Staff. Data at 31 December each year



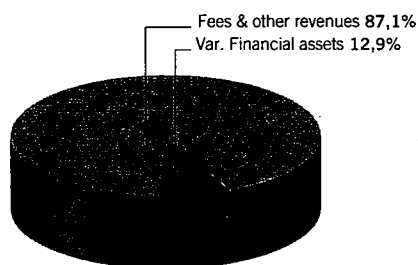
C.S.N. 1994 Budget. Total 4.681 million pesetas

Expenditure

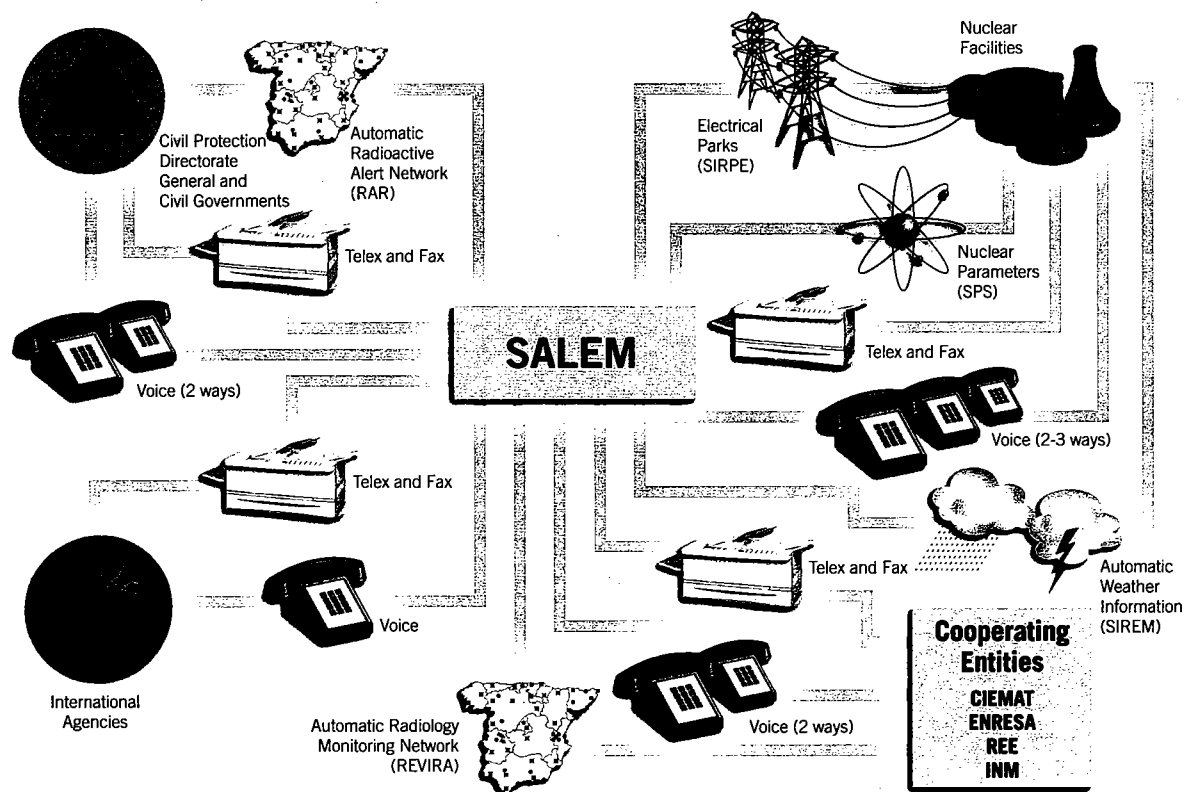


Item 1: Personnel expenses
 Item 2: Current expenses on goods and services
 Item 3: Financial expenses
 Item 4: Current transfers
 Item 6: Fixed assets
 Item 7: Capital transfers
 Item 8: Financial assets
 Item 9: Financial liabilities

Income



SALEM Communications



SKi

Swedish Nuclear Power Inspectorate

The energy situation in Sweden

Total consumption about 400 TWh/year

- electrical 140 TWh/year
- nuclear electric 65 TWh/year

Electricity consumption per capita:

- Sweden about 15 MWh/year
- USSR about 5 MWh/year
- USA about 10 MWh/year
- Western Europe (typical) 5-7 MWh/year

SKI's Activities: Nuclear Installations

Ringhals NPP
Vattenfall AB

	Capacity	Operation Since
Ringhals 1	825 MW	1974
Ringhals 2	914 MW	1974
Ringhals 3	960 MW	1980
Ringhals 4	960 MW	1982

Forsmark NPP
Forsmarks Kraftgrupp AB

	Capacity	Operation Since
Forsmark 1	1006 MW	1980
Forsmark 2	1006 MW	1981
Forsmark 3	1200 MW	1985

SFR - Final repository for radioactive waste
Swedish Nuclear Fuel and Waste Management Co. - SKB

ABB Atom AB - nuclear fuel factory

Studsvik AB - research reactor

Oskarshamn NPP
OKG AB

	Capacity	Operation Since
Oskarshamn 1	462 MW	1971
Oskarshamn 2	630 MW	1974
Oskarshamn 3	1205 MW	1985

CLAB - central interim storage facility for spent nuclear fuel
Swedish Nuclear Fuel and Waste Management Co. - SKB

Barsebäck NPP
Sydkraft AB

	Capacity	Operation Since
Barsebäck 1	615 MW	1975
Barsebäck 2	615 MW	1977

Project East



VATESI - (Lithuanian safety authority)
Ignalina NPP
Safeguards



BWR - Boiling water reactor (ABB Atom AB)



PWR - Pressurized water reactor (Westinghouse)



RBMK - Graphite-moderated channel-type reactor (MINATOM, Russia)

SKI

Swedish Nuclear Power Inspectorate

The Legal Basis

- The Law (1984: 3; 1992:1536) on Nuclear Activities
Regulatory authority: SKI
- The Law (1981:669) on Financing of Future Costs for Spent Fuel and Nuclear Waste
Regulatory authority: SKI
- The Radiation Protection Law (1988:220)
Regulatory authority: The Swedish Radiation Protection Institute (SSI)

Other laws cover nuclear liability and emergency planning

The Law on Nuclear Activities

- Defines nuclear materials, nuclear waste, nuclear installations and nuclear activities, requiring licensing
- Assigns the full responsibility to the licensee for the safety of nuclear activities, including safe handling and final disposal of spent fuel and nuclear waste
- Establishes the legal basis for control of nuclear materials and components
- Defines public information obligations
- Establishes the legal authority of SKI

SKI Regulatory Strategy: The Safety Case

- A licence to build and operate a nuclear installation is based on a safety case, presented by the licensee in safety analysis reports and reviewed by SKI.
- The safety case should demonstrate not only that a minimum acceptable safety level is achieved, but that safety is as high as reasonably achievable.
- When a licence is granted, the safety case is regarded as the safety level the licensee has contracted to at least maintain as a condition for permission to operate the installation.

The role of SKI

The licensee has the full and undivided responsibility for the safety of his nuclear installations.

SKI shall review and monitor how the licensees live up to this responsibility by

- making its own, independent and well-founded assessment of the safety status of the nuclear installations and of the quality of the licensees' internal safety work;
- promoting and initiating measures to improve safety,
- promoting maintenance and development of a high level of scientific and technical competence in safety-related areas

Moreover SKI shall take active action to inform the public on safety-related matters.

SKi

Swedish Nuclear Power Inspectorate

SKi Main Programmes

• Reactor Safety	27.3 + 27.8	MSEK
• Non-proliferation	8.8 + 2.1	MSEK
• Nuclear Waste Safety	10.1 + 12.6	MSEK
• Information	4.3 + 0.6	MSEK
• R&D, General	8.6	MSEK
• Project East	50.5	MSEK

Achieving a high level of safety is a matter of in-depth understanding and control of two sets of processes:



**Physical and Thermal
Processes in the Reactor:**

Reactor Physics
Thermohydraulics
Structural Integrity
Instrumentation and Control
Etc.



**Processes in the
Organisation:**

Management
Quality Assurance
Procedures
Training
Etc.

SKi

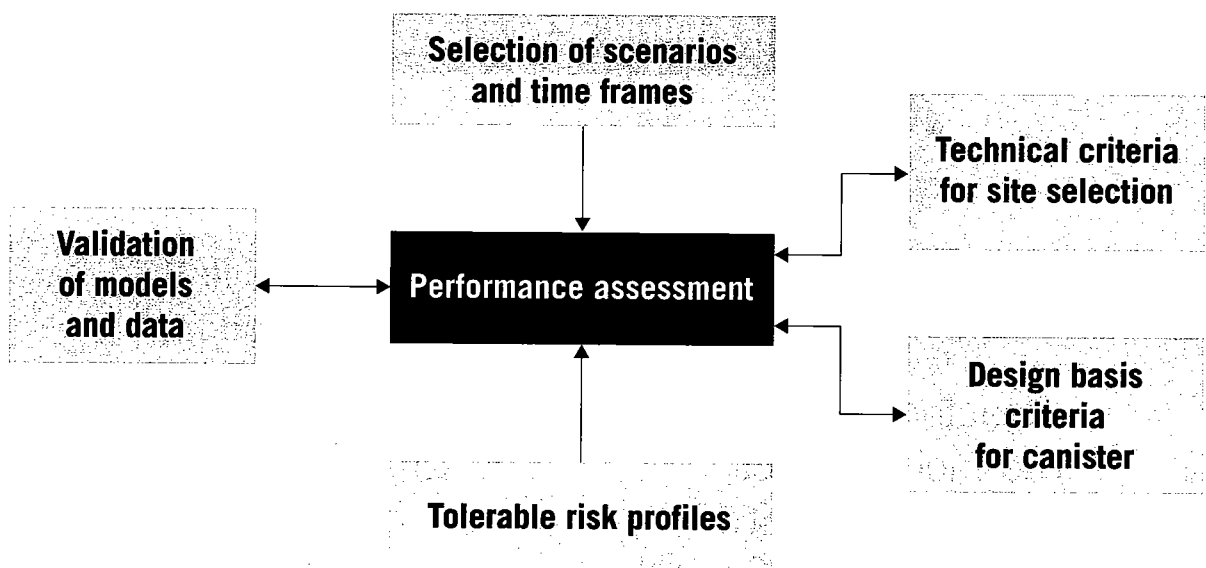
Swedish Nuclear Power Inspectorate

Safety Culture. Commercial airline experience. ("flag carriers")

- When boarding, the average probability for a passenger to become involved in an accident with at least one fatality is about 1: 4.4 million
- Depending on carrier, the probability varies between 1:260.000 and 1: 11 millions, i.e. a factor of 42

Source: Flight Safety Foundation, Icarus Committee, cited in SOU 1995:57

Final waste disposal: regulatory assessment approach



Session II

Discussion on the Euratom Treaty

Session II: Discussion on the Euratom Treaty

Mr. Kindelán: Let us proceed and discuss the Euratom Treaty which may be a very complicated discussion and we would presume that our German, Italian and Irish colleagues will have something to say on their years spent with the subject. So, let us now leave the word to our German colleague, if he would care to tell us something about it.

Mr. Hennenhöffer: Thank you, Mr. Chairman. As an introduction to our topic, I want to confine myself to a few words. The Euratom Treaty establishing the European Atomic Energy Community is one of the three European Communities and came into force in 1958. At that time, a quick expansion of the peaceful use of atomic energy in the Member States was expected. The Treaty assigned several competencies to the Community which are summed up in Article 2. The obligations and rights of the Community are described in the following chapters of the Treaty. I would mention only chapter 3 concerning Health Protection against the Dangers of Ionizing Radiation. In this context, **Mr. O'Flaherty** will inform us about the details, I presume. It is true that the expectations of the year 1958 have not been completely fulfilled but I believe that the Euratom Treaty is still sufficient. A

positive balance of the activities of the Community, especially in the field of Radiation Protection, can be struck. An actual question is, should the Euratom Treaty be on the Agenda of the Governmental Conference in 1996? The Member States of the European Union obliged themselves to this Conference in Maastricht. As you probably know, some Members of the European Parliament and some Non-Governmental Organizations have demanded integration of the Euratom Treaty into the Treaty of the European Community. This demand was not taken up by the Committee which is preparing the Governmental Conference and which shall report to the European Council in December in Madrid. In the opinion of the Committee, the Governmental Conference should concentrate on the really important issues of the European Union. To unify the Treaties of the European Communities is a long term task. Thank you for your attention.

Mr. Kindelán: Now, Mr. Naschi has the floor.

Mr. Naschi: Thank you, Mr. Chairman. I was telling my colleague here that unfortunately I remember the Euratom Treaty negotiation phase quite well. Unfortunately because this means that I am quite old. Then, as you remember, and as was said by

Mr. Hennenhöfer, this Treaty was signed on March 7, 1957 and reflected the situation of nuclear energy at that time, unfortunately. At that time, and this is well described in article 1 of the Treaty, the Community essentially had the objective to develop research in the nuclear field and insure the dissemination of technical knowledge, to facilitate investments and the construction of large facilities, because at that time this was the prime object in the nuclear field: to develop nuclear energy. Another point was the procurement of nuclear materials and to prevent diverting from their declared use. Then, to establish uniform basic standards for the protection of the population and workers and establish a common market for material, special equipment and the free circulation of capital, investments and human resources. As I have already said, this objective was a necessity of the time when it concentrated on the solution of those problems that at that moment were considered pre-eminent for establishing suitable conditions for the growing of nuclear activities in the Member Countries. Then, the main task in those years was to contribute directly to the activity of research and development and to facilitate prototypes. As you remember, one of the main chapters of the Treaty relates to common enterprises which were started in order to facilitate the construction of prototypes and large research facilities. But one of the main problems at that time was also

nuclear fuel procurement. The United States, which was the only country having enrichment plants, was very reluctant to support procurement of this material and when they gave this material, they submitted it to heavy, detailed controls over its use. It was usual for the NRC and the State Department to frequently send inspectors to see how the different countries were using the material furnished by them. So, one of the tasks of the new Community was to insure the procurement of this material and to guarantee the end use of the materials with its own safeguard system. In this respect, in order to enhance the power of the Community in controlling the material, it was decided that fission material was the Community's property. According to the Treaty, the Commission is the proprietor, the owner of fissile material. And the scope of the safeguards, of the Community, was to assure that nuclear material was not used for purposes other than those declared, which is a different and more broad based task than was afterwards taken on by the Agency of Vienna for the Safeguards Convention. Because it is not diversion to military use but diversion to other purposes. And in this regard, the Treaty provided for a specific Agency, the Agency for Procurement of Material. And the first commitment of this Agency was the negotiation of a bi-lateral agreement with the United States for procuring the necessary materials for all

Community countries. And in the early years of Euratom, the Agency played a very important role, it had a very central activity. But nowadays its functions seem no longer crucial. Personally, I have not been sure for a long time about its existence, I don't know, I heard nothing more about the Agency for Procurement. Beside these promoting objectives, the Treaty aimed to create real Community bases to facilitate the labour of free exchange, addressed other problems, specifically the problem of the harmonization of rules on the protection of workers and the population from ionizing radiation. Then the Community was required to set up basic standards for protection, to define maximum permissible doses, maximum permissible exposures and contamination and fundamental principles about surveillance for workers. And this was provided for in Article 31. The Euratom Treaty does not include, within the scope of the Community, any reference to nuclear safety, because at that time this was considered a problem of the designers, of the project teams. As in every other industrial field, the problem of safety was a problem of designers, of the project men. As a consequence of this lack of scope of the Community, long term debates and disputes have been ongoing. The last one was for the possible accession of the Community to the Nuclear Safety Convention of Vienna. And the signing of this Convention by Euratom was

possible because the Convention made greater reference to Health Protection issues. So, it became a specific task of the Community. But, then, in my opinion, most of the tasks, of the initial tasks of the Community, have lost their up-to-dateness, while some gaps like, for example, the safety field, are even more evident than in the past because the Commission is not in a position to answer public opinion's current expectations, especially in the safety field. And you know perfectly well that the European Parliament has been in many cases the mouthpiece for this subject. There are certain resolutions, the last one in 1992, in which the Parliament encouraged the Member Countries to move in an international framework agreement towards a system of more harmonized criteria and requirements on nuclear safety. In my opinion, this trend, at least in the long run, might be inevitable. We can't avoid it. For this reason I think a more intense activity would be advisable to make the actual harmonization already existing in regulatory practice among us more evident. It is not so evident in many cases. First of all, for example, for emergency planning. Then, in my opinion, we have the task to harmonize this practice, to make evident that actual harmonization in the main criteria already exists. Don't forget that up to now, European Parliament resolutions have no power by law. They are just suggestions, recommendations. But the moment is not

far away when the European Parliament will achieve the law-making power. In this case, what are now recommendations could, or would be turned into legislative acts and it is in our interest that at that moment we are prepared to give a positive answer to this problem. Thank you Mr. Chairman.

Mr. Kindelán: Now, Mr. O'Flaherty will speak to us on the subject.

Mr. O'Flaherty: Chairman, I thought it may at first be useful for people who have not read the Treaty very recently to outline the broad structure. There are five titles. Number I dealing with the aims of the Community. Number II, the encouragement of progress in the field of nuclear energy. Number III, provisions relating to institutions. Number IV, financial provisions. Number V, general provisions, and then annexes and protocols. Now I will discuss numbers I and II in a little more detail. On Title number I, that is, the first three articles, the aim it says is of "speedy establishment and growth of nuclear industries through research, the establishment of safety standards, the construction of facilities, the supply of nuclear fuels, safeguards against diversion of nuclear materials to non-peaceful purposes, provisions relating to property rights, to fissionable materials, the creation of a common market in nuclear materials and the establishment of appro-

priate international contacts". Now, to come to Title II which is the longest and most detailed title of the Treaty. This is divided into ten separate chapters. These chapters dealing, number 1, with development of research; number 2, dissemination of information; number 3, health protection; 4, investment; 5, joint enterprises; 6, supplies; 7, safety control; 8, property rights; 9, the nuclear common market and number 10, external relations. And what I will further have to say will relate mainly to Chapter number 3, that is the chapter on Health Protection. I might say at this point that this is the area in which, in the context of a possible review of the Treaty, Ireland would be most interested in seeing provisions for a strengthening of the Treaty. This Chapter includes ten articles. The first four, 30 to 33, deal with basic standards and I will return to say a little more in detail about that. Number 34 deals with the necessity for Member States to obtain permission for the carrying out of what would be considered dangerous experiments which might have consequences for other Member States. Number 35 requires countries to have facilities for continuous monitoring of radioactivity and number 36 imposes a requirement for reporting levels of radioactivity. Number 37 imposes a requirement for advance consideration of proposals for disposal of radioactive waste which might have consequences for Member States other

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than the country which is proposing to establish some new facility. And numbers 38 and 39 are more of a procedural nature relating to the formulation of recommendations to Member States and a provision of Health and Safety documentation. Articles 30 to 33, dealing with basic standards, are a very important part of the Treaty. As Mr. Naschi has outlined in his presentation, number 30 sets requirements for, or requires that the basic standards deal with the setting of maximum doses, of maximum exposure and contamination and medical supervision of workers. Then article 31 requires the setting up of a very important group or Committee of experts to advise the Commission in relation to matters relevant to the Treaty. Then number 32 provides for revision of the standards and number 33 requires compliance by Member States with the basic standards which have been set. And, in the final, I would simply mention some of the particular provisions of the Health and Safety Provisions of the Treaty which, in Ireland, we would consider it would be desirable to address. The Title incidentally is "Desirable Strengthening of Health and Safety Provisions of Euratom" specifically relating to articles 34 to 37. And, these are summarised rather concisely, in the wording firstly "to redress the democratic deficit". Again this touches on comments made by Mr. Naschi relating to the role of the European Parliament and the

desirability that there would be a more effective voice for the European Parliament in matters relating to Health and Safety in a nuclear context. Secondly, that there would also be greater Commission involvement in Health and Safety matters. Thirdly, the monitoring of the application of Health and Safety requirements and, fourthly, prior consultation regarding transboundary effects. Both of these in one way or another touch on aspects of inspection. I think it is well known that it has long been a view put forward by Ireland that it would wish to see, European Union based, inspection provisions for facilities within Member States, and, this is understood, it's not necessarily shared by all countries. There is of course the provision for inspection of monitoring facilities but the view would be that this should go further and this would be particularly held in the context of the expected further extension of the European Union to include countries in parts of Eastern Europe where the provision for inspection or the standards of safety and of national implementation of safety is less satisfactory than in the existing Member States. In that context it would be strongly felt that there would be a requirement for Community based inspection facilities in relation to both safety and to the possible transboundary effects of possible accidents and of disposal arrangements for radioactive wastes. And then finally, also that there would be

strengthening of liability and compensation measures. So, that concludes my presentation. Thank you very much, Chairman.

Summary of the discussion

- The Euratom Treaty was established in a situation for nuclear energy which is now historical. Therefore, a number of provisions in the Treaty, and the eventual lack of others in it, reflect facts that are not the same today.
- The eventual modification of the Treaty cannot be discussed without touching on political will.
- Most governments have not put a high priority or seem to be reluctant to revise the Treaty. The basic idea seems to be that, for the moment, such a revision is impossible because no consensus could be reached on it.
- Some governments seem to believe that some open issues can be covered through the Nuclear Safety Convention and the Convention on Radioactive Waste.

Individual ideas expressed during the meeting follow

Mr. Marqués de Carvalho: I think that one point that was already touched on, but which I would like to stress, is that the Euratom Treaty puts a lot of power in the Commission's hands and therefore takes away sovereignty rights of the member countries more than any other Treaty and

my question is whether this is the type of thing that we would like to see in a Community?. Are we not in a process where other treaties will increase the powers of some type of Commission or embryonic Government and maybe the European Treaty, I mean, a new, a renewed Treaty, will not give more powers than the others and will come to the same balance? And this will also address the problem of the balance between Parliament, the Commission and the Council of Ministers. Well, this is a political problem of course and it's a bit outside our technical capacities but I don't think we can discuss these problems without touching on political will. And the underlying problem is, do we in the nuclear community feel that more powers to a Central Government will lead or will tend to lead to a building up of a kind of nuclear regulatory Commission in the European Community? Is it desirable? Is it possible? It will be connected to our last topic of the day. But I would like to put it in an institutional framework now. Are we eager to try to step by step come to a kind of a common Nuclear Inspectorate?

Mr. Högberg: During our period of application for membership and negotiation on membership, we had reason of course to examine the Euratom Treaty in detail and I shall try to communicate some brief impressions of that examination. First, Mr. Naschi

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said the Treaty was established in a situation for nuclear energy which is now very historical and a number of provisions in the Treaty reflect issues that are not the same today. First, with regard to the Euratom Procurement Agency, it certainly reflects the conditions of the day when non-proliferation issues were in their early stage, world resources of uranium were perhaps not considered sufficient for the demands of the Community and so on, and that of course was the background of these, let's say proprietary rights of the Commission. Of course, this is not a safety issue, it has been of some concern to our industry although the paragraphs have not been invoked for a long time, but there were some signals sent when changes occurred in the former Soviet Union and a lot of cheap uranium and cheap enrichment facilities came on the market. So, it's not a matter of safety, it's a matter of concern, for the industry, this part of the Treaty not preventing a well functioning world market of materials and services. As to safeguard provisions and roles of the Euratom Safeguards Office, the principal concern was that when we compared this to the IAEA, if you look at the IAEA, the Board of Governors and the Senior Advisory Group for Safeguard Implementation provide IAEA members with mechanisms to discuss influence and develop the safeguard systems of the IAEA. It takes time and it's difficult politically but at least looking in

from the outside, we saw a lack of similar formal mechanisms within the Union with regard to the operation of the Safeguard Office. I would be interested to hear, from long time, Community members with substantial nuclear programmes of how they view this. This of course would not involve more than a mere revision of the Treaty and the provisions, just the mechanisms for member country participation and influence of the activities of one part of the Commission. As regard health and safety matters, we, as other countries, are now deeply involved in the revision of Basic Safety Standards. It takes a lot of time and effort. One of our principal concerns is that they should not be regarded as binding relations to the extent that individual member countries may not have some more stringent requirements in some areas due to national concerns about environment matters and health. And I think this will happen if the Commission enters also into areas like reactor safety, and waste management safety. I think it's important that you don't establish binding levels that represent something like the least common denominator. Of course, it would perhaps be detrimental to development in safety matters. The Swedish Government has not put a high priority on revising the Euratom Convention. Looking at the Agenda for next year's conference, our priorities lie in other parts of environmental matters and, of course, things like unem-

ployment. As was demonstrated during work on the Safety Convention, we favour stressing national responsibility in this field under a regime of international peer reviews. We think this is the best way to go and not have new institutions or, say, supranational inspections and so on. So, now let the Nuclear Safety Convention come on course, which hopefully will cover a lot of Eastern Europe too. Let us gain experience in this part before we move into formal regulations in the European Community and the same applies to the waste management side. This doesn't exclude, I think, a very necessary intensive discussion in bodies like this on how to create common understanding and especially to create common understanding on safety criteria, good methods to demonstrate safety, for example, repositories for high level waste and spent fuel with safety concerns very far into the future. But that will come again under another item on the Agenda.

Mr. Vuorinen: I would like to address two items also. First, we have in Finland the most complicated fuel cycle system in the world. Uranium comes from many countries. Enrichment services are bought in several countries, mainly in Eastern countries, well, the former Soviet Union. Fuel is made in several countries and so on, so that we've signed many kinds of agreements and well, after becoming a member of the European Union,

we have studied and discussed these things and, if I may say so directly, I feel that this Treaty, this ownership problem, is like a dead letter in practice, so I agree with **Mr. Carvalho** and **Mr. Högberg** that we can live with that, but with good will, because Euratom could make life very complicated. So that is my understanding. But they have been very flexible up to now, they have not prevented a practical solution so the Treaty has been more or less like a dead letter. So, it's some kind of rudiment in my mind, but there is a good purpose of course behind that, and we still like to keep matters relating to plutonium in mind. It has to be carefully thought out. The second thing is safety. Well, there is a historical background as **Mr. Naschi** already pointed out. We see the word safety in this chapter 3 maybe in two places but always in connection with radiation protection, so that in fact safety has not been considered in the whole Treaty. So this also means to me that this is an old-fashioned rudimentary Treaty in a sense. So that if Europe, the European Union were to be some kind of an example to Eastern countries, as a newcomer I would say that it is a disgrace that there is a basic document written like that. It does not meet today's requirements by any means for me. Of course, we have this in the Nuclear Safety Convention that is in all likelihood coming and will cover these needs but that, of course, is another matter.

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Mr. Willby: I'd just like to say from the United Kingdom's point of view, we obviously came to Euratom almost twenty years after it first came into being and I think that while we had some initial struggles, we have largely learned to work with Euratom and we certainly at the moment don't see any particular need to take up space on an already crowded Agenda at the IGC to discuss Euratom and in fact I don't think we particularly see any revision of Euratom being a high priority. As I said, we find the basic system works, we can live with it. I think an important point was just made by Professor Vuorinen that, I think you have to take the Euratom Treaty and bear in mind that there are other international treaties which also bear on this. He's mentioned the International Safety Convention, we're going to have a Radioactive Waste Convention. From the point of view of liabilities and compensation, we already have Paris, Vienna Conventions. Euratom does not stand alone in this. It is supported by a number of other treaties which go wider. Things like that really need to be broader than just Europe. Just a comment on a couple of things which have been said before. A number of speakers have said it isn't very democratic. They seem to assume that the only means of making it democratic is to somehow have the European Parliament involved, which is not necessarily our view. The fact that mem-

ber countries do in fact debate and anyone who's been involved in European negotiations on Directives, whether it be under Euratom or whether it be under other treaties, no matter who has proposed the Directive, knows that considerable debate takes place between member countries. Before, in general, we almost always seek a consensus on the matters going forward and, of course, this takes place under Euratom. The European Parliament can advise, that is their role under Euratom, they're an advisory body, and of course the Council of Ministers can in fact decide whether to accept any proposal or not at the end of the day. So I certainly don't feel it is possibly as undemocratic as some of the speakers have suggested. The other one that gives me some reservations is the call for greater involvement of the Commission on health and safety matters. If we go back to some of the other work the Commission does, such as research, the Commission can foster some extremely good work. It can at other times, be extremely bureaucratic and some of the work which comes out can be of doubtful quality. That's certainly our impression on the research side. And I don't think that greater involvement by the Commission would necessarily lead to higher standards. I think the Commission can do a lot in facilitating, coordinating and getting Member States to cooperate with each other, and in ensuring that basic health

and safety standards which are in place, which it does by means of the Basic Safety Standards Directive, but the question of giving it a greater role, certainly with regard to monitoring, I think we would be extremely reluctant to see any move in that direction.

Mr. Samain: We are against the reform of the Euratom Treaty. Being pragmatic, I fully agree with **Lars Högberg's** suggestion when he said that we first have to wait for the new Nuclear Safety Convention. We have the new system to build up an intelligible peer review and we have to get some experience in it before moving in any direction as regards increasing the Commission's involvement in health and safety to make some new stipulation in the Euratom Treaty. It's not an Agency to fail with for the moment because when we look at the work done by the Commission, I fully agree that we can find the worst and the best in it. And sometimes a very disagreeable approach in a very bureaucratic way. And we also have a second reason to be very cautious in an extension of the Euratom Treaty, and that is we are looking at the possibility of exchanging views with other countries and other regulators. We have a lot of international organizations to provide some fora, the IAEA and also the NEA of OCDE. We have a lot of opportunities. And, each country may have many concerns with a lot

of difficulties for European provision and this is the reason why it's one of our forum debates for the present discussion for the Directive's basic safety standards. It's a possibility for each country to go further than European standards when there is concern in this country, and I can demonstrate that it's not harmful for the working of the European Union. And it's very important. I will not go any further. I have said what we feel to be the most important thing of our position.

Mr. Lacoste: I must say that I fully agree with what Chris Willby said some minutes ago. France is quite reluctant about any kind of revision of the Euratom Treaty because we think that safety matters are quite obviously a good scope for international cooperation, maybe for international harmonization but, I would say, on a voluntary basis and we would be quite afraid of any kind of part that could be given to the European Commission about nuclear safety matters.

Mr. Caro: I have some kind of a generic consideration concerning a possible revision of the Euratom Treaty. First, I think we should consider whether it is necessary or convenient or profitable. It is not quite clear to me. Maybe it is necessary, maybe it's convenient and maybe it should be profitable. Anyway, what we can say is that it's cer-

tainly obsolete. It was made in 1958 when the general atmosphere towards nuclear energy was rather pro. Society was rather pro-nuclear. Now society is not pro-nuclear, and that's the kindest thing we can say about it. And many things have happened. The inconvenient, transboundary nature, of the effects of nuclear energy have been proven. This is something strictly connected with accidents and the Chernobyl affair and the effect it had upon our nuclear programmes. Well, to some extent, this transboundary nature and the need to address it in drafting a treaty in Europe with the highest density of population, with a very high density of nuclear facilities, is of paramount importance in this consideration of transboundary effects, which is not included, which is not mentioned not even in a fleeting way, in the Treaty. In the Treaty, though, some other considerations like the need for prototypes as an international collaboration is included, matter of fact. At the very beginning, we had some joint European ventures, you remember, the four joint research centres in Ispra, Mol, Petten y Karlsruhe were established and they are there. But I wonder why, from the point of view of prototypes, which should be most convenient for developing nuclear industry, which is one of the main purposes of the Euratom Treaty, has never been applied again since then. I wonder whether, as regards new projects, and there are many,

we could contemplate or we could mention, just mention, the new idea of Carlo Rubbia. New prototypes should be something to take into consideration. Nuclear energy facility development, which was originally included among the aims of Euratom, was never really taken into account. It was rather a kind of national project. I am not saying it has been good or bad, but certainly the current situation does not agree with what the Euratom Treaty has in its articles. So, maybe it should be modified in one way or another. Safety was not sufficiently incorporated, neither rad-wastes and the environmental issue. Well, there are so many issues which were not considered as real necessary topics within that Treaty in 1958 but that now are considered to be most important! However, we have other treaties, we have other conventions which to some extent are a support or could be considered as support to a new Treaty which we could emphasize from the point of view of this very crowded continent. Anyhow, I think, from the point of view of what we consider at present most important in that safety environmental issue, rad-waste and all that, it is sufficiently taken into account with the collaboration of other wider treaties. So maybe it's not necessary. But I should think it over because I'm not sure.

Mr. Alonso: My approach is going to be different. I am not going to make any state-

ment on the convenience or not of reviewing the Treaty, but I certainly will try to express my concerns with the limitations of the Euratom Treaty in the way it is drafted now. You have mentioned before that nuclear safety is not practically mentioned, the way we understand nuclear safety, and being responsible for that now in Spain, I think that I should express my concern with it. There is another related limitation and I want to join the two limitations together and this is the fact that the Euratom Treaty does not mention military applications at all. I want to express my concern on about how we should deal with the safety of military applications during peace-time. And I am not in the least now thinking of anything related to nuclear weapon testing. I am not referring to that. I will express what I am thinking of and this is a problem we are facing now in Spain. I raised this problem with some of my colleagues during private conversations last night and I want you to know what our concerns are and maybe this is something on which you can express your views. We are concerned with the control of radiation sources in military hospitals. We are concerned with the visits of non-European military nuclear vessels to European ports or with the matter of European military nuclear vessels from one nationality in ports and harbours of other nations. We are also concerned with the control of radiation sources which are normally

used in defence activities of the different countries for, let's say, peaceful purposes which are mainly under the responsibility of the military organizations. Now you mention the revision of basic standards and the point is that because the Treaty does not apply to military applications, there is the doubt of whether basic standards will apply or not to these military applications I have just mentioned. And this of course is a problem which can be solved by the countries individually but not on a general basis within the basic standards. And there is also the problem of our involvement, we regulatory authorities, in the protection of soldiers, in this particular case, and also of the general population because of these activities I have mentioned. There is another problem which is also of some concern and this relates to the physical protection of those installations. Of course, the military are supposed to protect these installations physically with great efficiency. But I wonder whether or not we licensing authorities should also get involved with that problem. And I believe that the Treaty is also lacking in any article dealing with this physical protection of facilities. Well, these are the concerns I want to express. I don't know Mr. Chairman if these concerns deserve any comments or not.

Mr. Kindelán: Now we have a new issue. Does anyone want to say anything on this subject?

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Mr. Versteeg: I was one of the persons talking to Mr. Alonso last night. I do share some of his concerns on military applications which seem beyond our control. We do not, as a regulatory body, have a formal role in the control authorization of military applications especially if they are, for instance, foreign nuclear powered vessels. It all falls under the Ministry of Defence. Sometimes also the Ministry of Foreign Affairs is concerned. But we are often consulted from our technical expertise point of view. I share his concern that it's difficult to pass expert judgement on something on which you are not really given any information comparable to what you would normally seek from land-based power stations. The only real statement you get is that they will, when looking at discharges, follow the ICRP guidelines, which is not very much but it's something. This is the specific question Mr. Alonso addressed. On the Euratom Treaty in general, Chairman, I think its the position of the Netherlands that we do not attach high priority to a revision of the Treaty. There is no reason that it should be taken up in next year's governmental conference. There are issues of greater importance to be treated. Although I know that our country has some reservations on certain items of the Euratom Treaty. For instance, we think that the area where the Euratom Treaty could be exploited a little bit further would be in the area of transboundary

effects. It's certainly an item where reinforcement could be made, whether you need to revise the Euratom Treaty to do that or not. But, for instance, if you look at article 37 which requires each State to notify the Commission beforehand on any discharges of radioactive material that could have transboundary effects, I find the process of consulting with experts, if I can put it on the table, more like a ritual dance than any real substance. If we are really concerned about transboundary effects, it's not the normal discharges or the discharges concerned with design basis accidents because what happens in design basis accidents is still more or less under control. I think what we really would want in such a case is to have a common basis of emergency planning, and I think that is something that we could share even without revising the Euratom Treaty. I think that is something that could be done now if we really have the desire to do so. There's one other item that I would like to mention in connection with the Euratom Treaty. If you look at the scale of our nuclear application. I've been asked by, not this Minister, but by the previous Minister several times, "well, if you look at the laws of scale, do you really need a national regulatory authority?" We've heard discussions about cuts of twenty five percent of staffing. Why not, let it all be done by Euratom or whatever or by some supranational organization. These are thoughts that are running

around politicians' minds sometimes, Chairman, and well, we've been asked these questions. And I've asked this question myself, especially for smaller countries. Due to laws of scale, let me ask you whether you can still afford the expenditure of a large European organization and whether it would just be more efficient to make a combination on a more supranational scale.

Mr. Marqués de Carvalho: I think that looking at the comments made around this table, they look very similar to the ones our fellow citizens will make about our own organizations in each country. We fear bureaucracy, of course. Our fellow citizens fear the bureaucracy of the federal states, of the local states, of the municipalities; municipalities will fear the central State; regions will fear the central State. All people are normally against leaving power to others. But, that's a fact of life, we have to share power. So, this is on the political arena again. It's for the politicians to decide if we have to go onto a more integrated system or a less integrated system. What I fear is that we are seeing the life cycle of a product. In the beginning of the European Community there was a very strong mission abroad to build a nuclear sector and there were very good and altruistic ideas of sharing knowledge and all the five or six States that signed the Treaty were more or less, or felt themselves more or less, on the same level of

knowledge and capabilities and so on. Later on, products developed. And as they developed, they became a little more regulated. And now it would seem that some people are not interested, others are anti-. It would appear the product is to be finished, ended, substituted by other products. And, if the politicians around Europe do not feel eager to foster nuclear as a whole mission or target for all Europe, of course we will not find grounds for having another Treaty or other institutions or anything else either. There's no need for institutions if you don't need the product and as long as Europe is not convinced of the interest of nuclear power, it will probably not reach consensus on a political level. But, it's up to the ones most dependent on nuclear power to feel whether they are strong enough to keep it for ever, or for some decades, or if they are interested maybe in building, they have to convince politicians as regards building a common interest, a common goal in having nuclear power sustained in the future. What I see is some kind of corruption in the Latin sense, the issue is being pulled apart and there will be no common grounds for any treaty and we are left with a corpse. Now the European Treaty is a corpse because it regulates things that we don't do any more very well or we don't do convincingly and doesn't regulate the main problems we have. So, I think that's my message for the politicians but I'm not saying that politicians in Portugal

will favour any revision. And if they look at the Treaty, if by any chance they do, they'll maybe say "Oh, there's the Treaty", and will probably be pushed into having more uniform, stringent rules. But, maybe they wouldn't even notice there is a European Treaty.

Mr. Naschi: Just a few comments on the discussion under way. First of all, military applications. Military applications are not the fault of the Treaty of Euratom. The whole military problem was outside the scope of the present Community. There is no military community, no defence community. As you remember, a defence community was suggested but not approved in 1958, 1959, something like that, by Mendes France who was against a Defence Community. Then the problem of military applications for the Community must be taken into consideration at the moment when at a political level, it will to be decided to have a defence community. On the other hand, each of us have the same problem in our own countries. The regulatory organization has no power over military applications also in the internal situation. And each country has found its own solution to the problem. In Italy for example, they adopted the same regulation that we have in the civil field but the military has its own regulatory organization with the exception of some problems, research facilit-

ies, waste and so on, which are under civil control. Then we suggest the military but the health physics of the soldiers are under the control of the military organization. This is the first observation. Now the second observation. In some way I see that there's some confusion about this Treaty. Someone considered it simply a treaty for international collaboration, but the Euratom Treaty is not a treaty for that. It's a treaty to establish a European Community. It is not on the same level as the activity of the Vienna Agency or OECD Paris. It is to establish the Community. This means something which should have the same regulation, the same rules for industry and for protection of population and so on. In this respect, some problems must be considered from a different point of view. This is the second observation. A third one. I want to avoid a misunderstanding with regard to my considerations on the Euratom Treaty. I have handed out a summary of my intervention. I don't suggest the Euratom Treaty be revised. I don't think it's the time to do it. There are many other things to do, and it's not certainly a priority. Certainly there are a lot of tasks which are not up to date. There is certainly a gap as regards safety and these problem will certainly lead to other problems in the future. But, we have to solve it when the time comes to revise the Treaty. I suggest we prepare ourselves because the European Parliament with the Maastricht

Treaty will not be in force in 1996, 1998 whenever it will happen, but the European Parliament will have the power to make legislation at the European level and we have already two strong recommendations to harmonize safety criteria. I have been working in this field for many years and I know that in practice we have the same ideas on most of the problems and we also do the same things in a different way. What is my suggestion? Let us present the harmonization we already have in a more evident form. Our differences are also microscopic and are not very important, it's just a question of interpretation of a basic common view of safety problems, a basic common criteria that we have already. And my suggestion is that we should prepare ourselves to avoid to have in three, four years a European Parliament which, in the absence of any kind of initiative from ourselves, will take a decision. And the European Parliament is outside the power of Governments. The Council of Ministers today is under the power of Governments and we can control this activity in a certain way. The European Parliament will be outside this control by us. Already today, they somehow take a decision that we don't accept, we don't agree on, but this is an independent power and we must prepare ourselves to avoid this independent power taking decisions which will revolutionize the situation.

Mr. Kindelán: Before going on with the next speakers, I should like to underline one thing which has been talked about, for these military applications and I think **Mr. Alonso** spoke about military applications, in relation of the military uses of isotopes and related things. He spoke, for instance, about the preference of warships and the use of isotopes in hospitals and research facilities. He didn't speak at all of military applications but of uses by the military of related things which are not under the control of the regulatory agencies, the confused field which could be, I think, is this one.

Mr. Samain: I will give a short answer, for instance to **Mr. Carvalho** when he spoke of the necessity to have common targets and maybe a revision of the Euratom Treaty. I will express it very roughly but I'm quite sure that for the moment it's impossible to revise the Euratom Treaty because we couldn't reach any consensus on it. When you look at some statements in the perspective of a revision, when you look at these statements, you are sure its impossible to do anything with the Euratom Treaty. Second point. It's a very interesting topic that **Mr. Alonso** put on the table about military uses of ionizing radiation. First, though, we in Belgium are prepared to go further than the existing situation in this field. First we have a very recent military regulation quite similar to the civilian one which applies the

existing guidelines of the Euratom Treaty and the European guidelines of 1984. Second point, I said yesterday that we have a new law on nuclear energy and ionizing radiation and this new law provides for an extension of the capacity of the civilian authorities to protect all civilian workers and the general public involved in the military's use of ionizing radiations in the military field. It's a new step that we took two years ago and it can provide an extension to civilian regulations. My friend Versteeg spoke about the transboundary effect but maybe it's necessary to remember that the Euratom Treaty has not been the only source of regulation for the nuclear field for a long time now. When looking at other European guidelines on the basis of the common Treaty, and I refer about the recent ozone guidelines, it's touching on the nuclear field and when looking at the guidelines presently under discussion about environmental impact assessment, they are also touching on all the nuclear field and thirdly, the enforcement of Export Treaty on the transboundary effect will also affect the manner, the way we manage problems in the nuclear field.

Mr. Högberg: I agree with Mr. Naschi, that we have to be aware of possible political developments within the Union, notably the role of Parliament, and as regards other things, we have to prepare how to deal with.

Secondly, I would like to comment on my Dutch colleague's concerns about small countries and maintaining the necessary competence. It's also part of, should we say, political developments. Historically, political careers were made by interest, by pushing nuclear matters. Today politicians stay away from it, in most countries at least, because political careers are probably wrecked by too much involvement in such inciting of waste repositories, and political careers are not made on that any more. And then, in that respect, it might be tempting, for some at least, to give more power to something like the Commission because then the political responsibility is moved, moved far away. That is one thing, but on the issue you raised about the possibility for small countries to keep up the necessary competence for national regulatory bodies, this certainly is a concern and I personally say that the Government must be aware that having a nuclear programme involves a sort of minimum responsibility for having a basic regulatory capacity and this is very clearly a commitment under the Nuclear Safety Convention. On the other hand, it's evident that greater cooperation, especially on what is known as technical support organizations, is needed, I think. Of course, whilst making the most efficient use of resources and that might be a thing to explore more on a voluntary basis than through the Commission.

Mr. Katsanos: I would like to mention another Euratom activity which has probably been forgotten up to now. This is the fusion programme. It is a programme that was handled by Euratom, it takes a lot of money from the Community, it was a very successful programme and it's a programme that doesn't create objections or anxiety in the public because it's a project which people are not afraid will create problems of safety as with the fission programme. If, coming to the point of the discussion, the possible consideration of the Treaty, I think that it will be difficult to achieve public acceptance, unless the discussions are centred on safety and subjects of this kind.

Mr. Lacoste: I will deal with two items. The first one, where I will refer to what **Mr. Naschi** said. I fully agree with him. We are reluctant, and I think most of us are reluctant, to the idea of any kind of revision of the Euratom Treaty. On the other hand, we must work together towards harmonization and this work must be quite an obvious one. I don't know how it will be the situation in the year 2020. I don't know how many countries will still have nuclear energy after having chosen between pollution or nuclear power. But the question is, will any of the countries having nuclear industry have a technical safety organization under the national safety authority and obviously, the answer is "no"! That means that sooner or

later, countries, two, maybe three, will have to decide whether to have a common technical support organization or maybe a common safety body or a safety agency. And I think this is maybe the core question for us. Because that means that sooner or later, on a voluntary basis, there will be a limited number of safety bodies, a limited number of technical support, of innovation, and I think this is the way Europe will be built as regards nuclear safety. If we think this is the way things will develop, it means we don't need any kind of revision of the Euratom Treaty but we need quite a lot of work on harmonization, common understanding and I think that will be the issue to be addressed at the end of the day. But what I say is that it takes quite a lot of time to work seriously on this topic. I will just say that we have been working on that kind of topic with Germany for at least fifteen years. So, it takes quite a lot of time and that's the reason why we should start soon.

Mr. Vuorinen: Well, I don't know how to express it, but I'm used to working in my organization without such political pressures, political will and political views. My understanding is that political needs will change very quickly, depending on who is the leader. We've been talking very much as if there is a need for improving the Treaty or not. Maybe I'm too pro-active by saying that I feel that it's a matter for politicians,

not a matter for us. We should look at what it includes and what not. I am just giving my opinion as a regulator. And at the moment I can see that it covers radiation producing matters very well. But it's a political question which should be covered by some other forum if they feel that it would cover nuclear safety matters or not in the future. Maybe tomorrow, political will shall prevail in Europe, perhaps it is not a political will today. That is why I'm disturbed, on the basis of most of the other speakers here this morning. I would give a further reason for that. In most European countries, the acceptability of nuclear power is on a razor's edge and that very much depends, for example, on the credibility of international organizations. So, at the moment, things are changing in the area of safeguards and people have been used to having a certain amount of belief in safeguard activities of the International Atomic Energy Agency and now there is a shift towards a Euratom system. I believe that this trust will continue and even improve but at the same time, if there is a strong emphasis in Europe that in European countries we do have better nuclear safety requirements than in Eastern countries, it is something which has been stressed again and again over these years and if we look at what has been agreed in these matters, very, very little has actually been agreed and enforced. If people working against nuclear power start looking at what

is included here, we should openly say then that it is not covered at all, and that is what I wanted to get across, it is not covered in practice. I agree with **Mr. Versteeg** when he stated that at least we should have things relating to our neighbourship problems, emergency preparedness, but that is only one aspect. I mean, emergency preparedness requirements, principles. In a way, we are not convinced about the technical safety requirements of our plants.

Mr. Kindelán: I am going to take the privilege of the Chair to take two minutes to comment on what **Mr. Vuorinen** said. I think **Mr. Vuorinen**, that we all agree that politics is a little beyond our meeting today, our everyday duties. But what are politics?. I think politics are a combination of ideas, interests and maybe also future wishes. It's difficult to take everything concerning eventual reform of the Euratom Treaty into account. But I mean, there is no contradiction between the political level of the matter and the opinion which can be given by regulatory bodies, just as every other body in the different countries.

Mr. Willby: I think that I'd just like to stress that I get the impression that some people seem to feel that the only way of making progress is through the European Commission and of course there are many ways of making progress and working

together. Going through the European Commission is but one of them and I think that a number of us have stressed that we feel that this is an area ripe for collaboration between countries, possibly in parallel with work which the European Commission is doing on basic safety standards. Leave them to the health side and the basic safety standards, but on the nuclear safety side, we feel that we make more progress by simple bilateral, tri-lateral meetings between us. Just one comment on the military side. I think that it's really in the hands of individual countries how they regulate the military use of ionizing radiation. Certainly, within the United Kingdom, we have a situation where all civil nuclear law with regard to either nuclear safety standards or ionizing radiation standards is taken to apply to the military side, unless they particularly say "no, for particular reasons, we wish to exempt ourselves". Thus, for example, the military side fully complies with ionizing radiation regulations. What we, as a body, don't do is we do not inspect against it unless there are civilian workers involved. We leave the military to police the regulations themselves or their application, but if there are civilian workers involved, then of course the civilian authorities, which in the main means the organization I represent, actually go in and carry out inspections at military establishments to see that national laws are being enforced. Thus, I think, it is largely

up to individual countries. They have the freedom to decide whether the military will or will not comply with the same sort of laws that apply in the civilian sector. It's a matter for individual countries rather than for Europe, I think.

Mr. Caro: I fully agree with **Mr. Willby's** ideas on the subject he mentioned. But you know, in the Straits of Gibraltar, particularly during the cold war, we had an intense nuclear traffic in a channel which is only ten to fifteen kilometres wide and very difficult for navigation. That means that the probability of a collision, of a nuclear accident, was very high. Even now, traffic is far less than it was but, I'm not sure, I suppose that in the English Channel there will be the same problem. Maybe, as it is wider, the probability of collisions will be less. So, this could well be a typical case of transboundary effects of a nuclear accident affecting not only the individual country but the European Community as well. Taking into account that most of those who might cause an accident would not be European and that's the only case where, I should say, something should be taken into account in a possible addition to the Treaty.

Mr. Willby: I would say that if they're not European, it becomes very difficult for the European Community to have any jurisdiction. I happen to know that most of the traf-

fic going through the Straits of Gibraltar is probably still not of European origin. And it means that no matter what the European Commission or Directives say, it will have absolutely no effect. It will have a very limited effect, only upon European countries.

Mr. Caro: May I say that in the case of a collision in the Straits of Gibraltar, very probably the countries of Northern Africa, Spain and Portugal and, to some extent France in the area of the Gulf of Lyon could be involved, because sometimes radioactive clouds travel long distances. In the case of a collision in the English Channel, Belgium, Holland and the British Isles could receive such nasty effects. So, in my opinion, as this is a phenomenon involving many European countries, or a few European countries, it is a matter which should be at least discussed in one way or another.

Mr. Vuorinen: Excuse me, I would take the floor once more. First of all I would like to assure you that I haven't proposed that the Euratom Treaty be renewed or not. I was trying to analyze what it covers and what it does not cover. If the quality is good or not. That was my statement. The second thing refers to this military problem. There are different theories. For example, one area. Every now and then military propulsion ships, perhaps including weapons, are visiting our harbours. And we are asked if they

are safe or not, what kind of safety level they have. I fully agree, we can't decide here, and it is even useless to discuss here whether there will be a political agreement to do something. But, we can discuss here whether there is a real need and what can be done technically to do something. That's if there is any technical interest to do it. That is how I see it. But it is completely useless to discuss whether there will be an inspection possibility or not because that is completely a political decision.

Session III

**Impact of the Nuclear Safety
Convention**

Session III: Impact of the Nuclear Safety Convention

Mr. Kindelán: I should like to ask our British friend to talk a little about the impact of the Nuclear Safety Convention.

Mr. Bye: What I would like to do is give a very quick introduction to the Convention, just really to remind people of what I consider to be the key points, and then **Mr. Versteeg** will follow up with a report on what happened earlier on this week in Vienna. So to the Convention. The last figures I have are that there have been eight ratifications from nuclear countries and a total of thirteen ratifications. This is about half way towards the requirement of the seventeen nuclear and twenty two total that are needed to bring the Convention into force. We hope that the UK will ratify this year. The Parliamentary procedure is now complete in the UK so it's really just a question of the bureaucracy getting it done now. I've really just tried to cut what I believe to be the key elements out of the convention and just remind us that the purpose of the Convention is to achieve and maintain a high level of nuclear safety worldwide, and also that the scope is limited. In the discussions that led up to the Convention, there were a lot of proposals from some countries to have a much wider scope than this and several other countries wanted to narrow it

down to a much smaller scope. I think a very sensible compromise was reached just to restrict it to land-based, civil nuclear power plants and also the storage, handling and treatment of fuel that's on the same site and directly related to the operation of that plant. The Convention contains a series of obligations but they can really be grouped together into sort of main points and the first one is perhaps the most important and that is that the obligation is actually to report on how progress is being made in arriving at the position of meeting all the other obligations. It is a case that it's not necessary to say how you have met the obligations, it is a case of how you are progressing towards meeting them, which allows countries to ratify it even if they do not, at the moment, meet all the obligations. So that's the reporting side. Then the other main points are to establish a legal and regulatory basis, to also provide adequate resources to both the plant and the regulator to ensure safety. And then also to carry out a safety evaluation of the site, the design, the construction and the operation. How is the Convention going to have an impact? It's an incentive convention, not a coercive one. The aim is to persuade people through peer pressure, not through sanctions or any other stronger form. It is purely designed to be peer pressure, to bring people or other countries up to a common high standard. So this is why the peer review pro-

cess is going to be extremely important in actually making this Convention have the impact that it's intended to have. What was the target of the Convention? It's not written explicitly there, but in all the discussions it was very much to bring the countries of the former Soviet Union, and Central and Eastern Europe up to a higher standard than they have at the moment and to a standard that, I think, most countries believe they are already achieving. I think that it hasn't been difficult for most of us although I must admit, as we've gone through the articles of the Convention, we found one or two places where we would find it a little bit difficult to explain how we meet the obligations. And I think therefore that this has been a very useful exercise for us. But the main target was really the former Soviet Union and the countries of East and Central Europe. But will it work? And these are sort of personal views now really rather than UK views. I'm concerned that in recent weeks peer pressure has not worked on Kozloduy and that is the most blatant example. Going back over a slightly longer scale, in Armenia there was a general reluctance to encourage restarting at Medzamor. Peer pressure didn't work then. Is it going to work now? I raise that question. I don't propose any answers to it at the moment. The cultures in the West and East are very different and I believe this is where the key problem lies, that the command economies

of the Eastern countries, the old Eastern bloc, has engendered a totally different culture, a totally different concept of the role of safety and the considerations that safety should be given. I prepared a slide that really asked the question "does safety or responsibility equal affluence?" Because if a country has got spare resources, if a country has got money, it can afford to shut down an unsafe nuclear power plant. If a country's broke, it's absolutely totally dependent on a nuclear power plant for its electricity supplies. Safety will necessarily have a rather lower priority in its considerations, I would feel. So we come to "is it peer pressure or really has that got to be tied in with money from the West?". Now, we are still working with assistance programmes. This will obviously have to move more towards co-operation programmes rather than assistance programmes but, and also, perhaps there is a role that we've got to find some way of encouraging reinforcement of safety standards in those countries. We have programmes of encouraging their nuclear regulators, etcetera, but I'm not convinced again, whether that is actually coming to fruition in some of the countries. So we come back to the peer review process. This is what we are pinning our hopes on and there were two original methods that were discussed for carrying out the peer review process. One was to do it on a subject basis, to address each of the individual main subjects within

the obligations. And the other way was to group countries together and I think until this week there was a certain debate on it. But now I think this is a convenient time to hand over to **Mr. Versteeg** to tell us what came out of Vienna. Thank you.

Mr. Kindelán: Now it is the turn for **Mr. Versteeg** of the Netherlands.

Mr. Versteeg: I will try to follow on from where **Mr. Bye** ended. He started his presentation by stating that the number of ratifying countries was already eight nuclear countries and seventeen are supposed to be the minimum in order for the Convention to come into force. It's expected that these nine further States will ratify before the middle of next year. And that means that a preparatory meeting will be held before the end of next year. In order for the preparatory meeting to be a success in one meeting, as it's supposed to be, there are pre-preparatory meetings, informal meetings, in order to prepare for the preparatory meeting. The first meeting was held in March of this year. A second meeting was held the first three days of this week, Monday through Wednesday. I attended that meeting as my French colleague, **Mr. Hulst** also did, playing a very active role, as one of the promoters of a working paper that turned out to be accepted. There were three main areas. The first one was on how

to submit national reports, what should they look like. Secondly, is what does the peer review process look like and the third item we touched upon were the rules of procedures. I shall go briefly into each of these items. On the national report, what report should be submitted?. There was a combined Japanese-German working paper which had a mixture for dealing with topics of the Nuclear Safety Convention and an article-by-article approach. That was a good start, I think. During the discussion, the regulatory bodies of the VVER reactors, with I think the lead country being Finland, had a pre-preparatory meeting amongst themselves and also tabled a working paper which gave the content of the national report on an article-by-article basis. I think it was good to see that those Eastern European countries in the former Soviet Union actually took what I would say to be a rather positive initiative to think things over and I thought that was a very positive sign that they were really cooperative. In the discussion, it turned out that the majority amongst the contracting parties supported the article-by-article, approach. But still under the *chapeau* or heading of the chapters of the Nuclear Safety Convention. Now, the Nuclear Safety Convention has about four main headings, the first being General Provisions, which are general provisions, but one of the articles is very important and that is the article on existing installations and that's what

gets us all worried, so that is a very pertinent article. The second chapter is Legislation and Regulation, the third is General Safety Provisions, which are the conditions that will allow you to site, design and operate a plant, conditions like quality assurance, human factors, safety culture and so on. Then the last substance chapter is the Safety of Installations. So, now, all the articles, article-by-article, will be under these four chapter headings. Some more discussion will be needed. What exactly should be common to each of these articles under the chapeau and what should be dealt with article-by-article because if you really do it article-by-article you might lose track of some of the common features in design and operation and so on. Now what are the discussion issues that may not be completely resolved? One of the issues was the requirement for a listing of all nuclear power plants. Should it be a listing of all the technical and safety features of each individual power plant or should it be a listing of types of power plants and only when relevant should it refer to individual plants? That's something that still needs further discussion. There was also an item on whether or not the area of financial resources available for decommissioning belongs to the Nuclear Safety Convention or belongs to the Waste Convention. That's also an item which needs to be further addressed. I think there may be minor things that need to be

settled, but these were the main issues. Also there was one item that our French colleague has a very straight opinion on. This was whether radiation protection laws should be dealt with under the main heading of nuclear regulation or should be addressed under the heading of radiation protection under operation. Well, Chairman, this was the national reporting. I think we have come quite a step forward to the final report that has to be submitted. The second item was the review process and there was a combined UK-French working paper as a basis for discussion. I think that was a very good start. The basis is a country group approach rather than splitting up the Plenary meeting into a number of topic meetings. This country group approach has a number of nuclear countries as a basis, five, six or seven nuclear countries and a number of non-nuclear countries in one group, and will discuss complete national reports. The alternative, having topical meetings on three or more topics, was still supported by the US, Japan, Canada to some extent, also India would like to have that for the first review meeting and also Austria wants to support the approach to do it by topic, but I think the reason was more that they want to be present in each group rather than having a formal approach. Anyway, with the majority of countries present supporting the UK-French paper, this was then used as a further basis for discussion. And I think there were

some minor adjustments. This working paper really addresses the review process now quite clearly. All countries having submitted national reports, these national reports will be discussed in detail during the peer review meeting. In group meetings there will be group rapporteurs who then report back to the Plenary meeting and then there will be a time allocated, say a day for each group of five, six or seven countries, to have a Plenary discussion on the national reports for that group of countries. Now, what were the discussion items during the meeting? I think the idea has been dropped that each national report should be presented at the meeting. Instead the rapporteur will summarise the discussions of the meeting rather than having each country report its own report. One of the main items, and that's still a hot issue, is the report of these country groups. Should that be a consensus report? And there it was clear that the example of Bulgaria was mentioned. Bulgaria was one of the countries pushing very hard for a consensus report to be presented in written form for a country group reporting. Well, what does consensus mean? Consensus, that's people having different views on something that could also be the consensus and in that sense, like the Bulgarian example, one could conclude that Bulgaria did not agree with the report and that's the consensus. Well, this is something that has to be debated further. Also whether

all the names of the countries should be reported in that country reporting. It is known that countries should not be identified by name in the final report which will be given to the public on the Nuclear Safety Convention, but whether this will be done in the country group reporting to the Plenary is something that I think needs further discussion. It's obvious if we want to discuss national reports, the discussion items in these national reports should be identified. So, for me, it's sort of obvious that you also then mention the names of these individual countries. But that is still a matter of discussion, with Bulgaria and others against quoting country names in the group report. That was, I think, one of the hot issues. One of the other issues is, how many countries do you need? If we have about thirty five nuclear countries which operate nuclear reactors or still have reactors which are in the process of being decommissioned, you could split up those thirty five countries into five groups or seven groups. And in the original UK-French paper, there were seven groups. But if, each having about five nuclear countries, in a discussion, it was preferred to have the number of groups reduced in order, I think, to also be more efficient. So, I think most countries now support the five group approach, with some reluctance on the part of Austria, Greece, Turkey, Slovenia and Bulgaria, for, I would say, different reasons. There is one

very hot issue which is still prominent and that is the right of presence of each individual country in each of these country groups. And there Austria is the leading country. The Nuclear Safety Convention says that there should be a reasonable opportunity to discuss and ask for clarification on each national report. That's what the Nuclear Convention says. Each country has the right, prior to the preparatory meeting, to receive, study and submit questions on each national report. Those questions are then assembled and taken into discussion in the group at which the national report is discussed. Any country may be given the role of observer in each group, but not that of participant. That was one suggestion made. Another suggestion was that a country could be present in a group when one of the questions that it submitted in written form is being dealt with in the group. That could be another solution. Another possibility, and I think that refers to the rules that the Board of Governors of the IAEA uses, is that any country can speak up in the Board of Governors on any pertinent subjects, and therefore they could also exercise that right in each of the country group meetings. Well, that is still, I think, a hot item that needs to be addressed at a forthcoming pre-preparatory meeting which will be held in June of next year. Also during that June meeting we will have to look at the rules of procedure. They were

tabled by the Chairman in this meeting. Apparently draft rules of procedures were already developed during the Convention negotiation process by a working group but it was never discussed in detail during the Plenary session. And, there was a brief discussion on the rules of procedure. There were some suggestions about not making such formal rules of procedure and to do away with things like credentials, if at all possible, and also simplify the election of Presidents and Officers and Chairmen or Rapporteurs. There was also some discussion on voting. There was quite some discussion and also confusion on the item "Closure of the Meeting". It turned out that what was meant is a meeting in closed session, in camera as the UK translated. That still is not settled. The Convention itself says that all meetings are confidential so then the question is whether you need a special provision to have closed sessions in addition to that. One of the major issues in the rules of procedure was not tackled this time because it's a very difficult one and that is the languages of the national report and of the discussions during the peer review. So that is a hot issue which will be delayed for further discussion and has to be tackled in the preparatory meeting. I think these were the items that I had written down briefly from the meeting but since **Mr. Hulst** was one of the very active members of one of the working papers, **Mr.**

Chairman, I would suggest that you ask him whether there's anything I have forgotten.

Mr. Kindelán: You have the floor, **Mr. Hulst**.

Mr. Hulst: Thank you Mr. Chairman. First of all I would like to thank **Mr. Versteeg** very much for his very precise presentation, which reports about the work we did this weekend. I'd like to make one statement and two comments. First, my statement is a big thank-you to all the European nations here present who strongly supported the initiative of the UK and France. This showed the coherence that we are looking for and that you addressed previously in this meeting this morning. And I think that, come back last March, UK and France came with a proposal which was not certain to be successful and thanks to your help and also to the help of other nations, Canada, United States and Japan, finally rallied to that proposal which is now accepted as a consensus. So it's no longer one of the options but the option of the working group. So, my two comments. There are still two points to be discussed, the one on waste by Bulgaria, and I would say Bulgaria itself, about consensus. My British colleague in the meeting found very nice wording as the British are able to, and finally that guy from Bulgaria, who was very clever, accepted the wording so we are

going to use that wording: division of consensus. You say one thing, someone else says another thing, and that's the report. He accepted at the finish so. On the other point which is more difficult, I think, to solve which is the one of whether or not a nation is allowed to come as an outsider, an attendee, member, of any other group, the UK and the French delegations have told that they needed to come back to their capital to think about it and come back with answers but we did not want at that time in the meeting itself to say any kind of tentative solution which would not, had it been, let's say, balanced or simulated because we can make simulations. We went through the paper with, at the beginning seven groups, and we saw that it did not work. So well, and now it's five. First of all it works; second it's balanced and third, great consensus or majority of nations were in favour, but if we come back with a solution, we like to have simulation first, we have our own ideas but it's, I think, too early to make a real proposal. But again, thank you very much for all the nations of Europe who supported our ideas.

Mr. Versteeg: I think these were very noteworthy comments by **Mr. Hulst**. There's one thing I should report on. **Mr. Bye** asked a question on whether money also was involved, or should be involved in the discussion. During discussion in the meeting, I think

the technical cooperation was only very weakly stated once or twice by India or Pakistan, but did not really play a major role in the discussion. Technical cooperation is not in the operative paragraphs of the Convention, it played a major role but not in the discussion this time and I think that's something worth noting.

Summary of the discussion

- The influence of the relation of the Convention with the safety problems of Eastern countries reactors was underlined.
- Two main aspects - different safety cultures and the importance of Western financial aid - were discussed.
- The peer technical pressure and the consensus issue in the evaluation of national reports to be submitted were pointed out and analyzed.
- The initiative of the UK and France regarding the review process of national reports was supported.

Individual ideas expressed during the discussion follow.

Mr. Kindelán: Mr. Bye underlined the influence of the relation of the Convention with the problem of the Eastern countries. One thing I have to say is that, first of all, I don't think there is a different culture between West and East. It's important different

money. The problem is the problem of rich and poor in my view. And that raises the point of money. **Mr. Bye** underlined that, you know. The point is a lot of money is need-ed to correct the problems in the East and no-one is prepared to put that money. There's no money there to correct the problems these countries face and they're not prepared to spend that money. Now **Mr. Naschi**.

Mr. Naschi: In my opinion what is important is the definition of the consensus.

The consensus is when a final conclusion is reached without any expressed disagreement about it. It is not unanimity because unanimity is the public unanimous acceptance of the conclusion. These two different definitions must be very well explained because, otherwise, the Convention would never be applied because in the Convention everything is subjected to consensus.

Mr. Högberg: I think it will be possible to have exactly that meaning of consensus which is well established in the policy making organs. Consensus means that the country will not ask for a formal vote against. But that doesn't mean that an explanation of position could not be added to the record. That means that you can have a consensus report but, for example, Bulgaria may ask to have its position on a

specific issue added to the report and I think that is something that could reach wide agreement because it's used in the General Conference and the Board.

Mr. Vuorinen: I was asking also what means consensus. I was answered by our diplomats that consensus means that there is a common opinion. But if they like to separate, because they may have a differing opinion or they like to express that there is not a common opinion, they use normally the expression "in consent" and that is very close to what **Mr. Högberg** was explaining. Then, let me make a question first and then a small note. Reading this Convention, and remembering the original discussions, what is missing in this Convention is transparency and it is embedded under the nuclear safety culture. That is reflected very well but we are not ready for transparency in the nuclear safety area. Then, I like to comment a statement about the differences between East and West. I still believe there is one basic difference. I agree with you, Mr. Chairman, that Eastern people, Russian, Czechs and Bulgarians on these technical safety problems, they think in very similar way with us and there are very good people on both sides. However, there's one very big institutional difference and that is reflected very strongly in the system what is now and that is a question of understanding who is responsible for what. And it takes a long

time to have a change. It is reflected also on the difficulties on the process to develop legislation in those countries, especially in Russia, so that we don't know at the moment when and what kind of regulation there will be developed. And that is reflected not only on Directors level and company level but it is also reflected to a grass root level, this uncertainty on who is responsible for what. So, in that respect they have a completely different culture.

Mr. Högberg: I add you more things to reflect on besides the consensus definition which I think was clear. First I want to support what **Antti Vuorinen** said about differences in the East. Our experience in Lithuania say it's just the institutional differences. The concept of responsibility, the definition of responsibility on various levels. We are trying now to get some development of the organization there but it's extremely difficult, because, as I say, on all levels they are trained in a totally different system. Technical things are more easy to change than people, and on technical things mostly agree. Secondly, I certainly want to thank the UK and France for so successfully working towards this issue of country group approach which I think is really the only sensible one to make the real intentions behind the Convention come true and I'm really looking forward to the following steps. When it comes to Procedures, in

Voting Procedures, Article 22 says "At the preparatory meeting, the contracting parties shall prepare and adopt by consensus, rules of procedure and financial rules and the contracting parties shall establish in particular and in accordance with the rules of procedure, guidelines for the national reports and the process for reviewing such reports." And then it says in Section II "At review meetings the contracting parties may if necessary review the arrangements established pursuant to sub-paragraphs, related to the national report review process, and adopt revisions by consensus unless otherwise provided for in the rules of procedure". And I think it's very important that this exemption possibility is used. So changes, in the review procedures and so on, cannot be blocked by one signatory country, for example, Bulgaria at present. It was some thinking on that when that paragraph was finally negotiated.

Mr. Hennenhöffer: I want to add something to the comments of **Mr. Vuorinen** and **Mr. Högberg**. My personal impression due to my work in GRS in Eastern countries for the last five years perhaps, is they have a more formal impression of safety. They need a lot of stamps. As more stamps they have, the plant is safer and my concern is that our very stiff process here gives them the next stamp. They report and we discuss without consensus or with consensus and therefore I

think we must look more for the technical basis of this. Procedures are important but the main point is to have a common technical basis. And therefore I think **Mr. Bye** showed us that we need pressure and money and I think technical discussions also. This will be the future.

Mr. Vuorinen: What **Mr. Hennenhöfer** is telling is not in contradiction what we said with **Mr. Högberg**. You see there are institutional differences that means that this problem of who is responsible for what is reflected in collecting stamps because if something goes wrong, somebody is guilty and that a formal procedure will found who is guilty, and the guilty will be punished. If a system has once been accepted by a highest level, party level, then it is correct, and if something goes wrong, somebody has made a mistake or something like that and somebody is guilty. So these institutional differences are reflected in this, and the whole system.

Mr. Lacoste: I would refer to what was said by **Richard Bye** some minutes ago. You said towards East European countries we need peer pressure and money. I agree with **Mr. Kindelan**, we don't have the money for them. This is important. We don't have the money. So, I think we need peer pressure, obviously we need technical support, we need time, we need to help them to do

energy settings and we need to help them to get to this form of democracy. That aids us to think that it will take something between fifteen, if we are quite optimistic, to twenty or twenty five years of work to be done. And if you think like that, that means that the international intervention of course is useful but this is only a small part of a huge issue and you can see we are still back to the idea of arriving to the year 2020.

Mr. Alonso: I am going to present to you two reflections. I have to confess that I have not been deeply involved into the Convention but, because of my new position I now have responsibilities on the Spanish side. The first reflection that I have, is that you have been mentioning very clearly the Eastern European countries nuclear activities and you have not mentioned at all problems that may appear in other countries, and I am specifically thinking of China and India and probably Pakistan, which could also present similar problems to the Eastern European countries. The second reflection that I have is that I was very happy to listen to **Monsieur Lacoste** this morning for saying in the year 2020 there will only be probably one regulatory agency or at least some countries will join together, but maybe you're too optimistic. In our particular case, the regions in Spain would like to become regulatory as well. So, I think your idea is good, I will support certainly that and maybe you

are a little bit too optimistic but anyway this is something of interest. And also **Mr. Hulst** this morning, earlier, he praised the very good cooperation between France and the United Kingdom in the preparatory work and this is also something that I see with a great deal of, let's say, complacency. Now, the problem is then for us, the people that are here, how should we act in relation to discharging our duties in front of the Convention? And I see three possibilities. The one which seems to come is to act individually. But there are other two possibilities. The one is to act within a certain coordination so that we have a common position and our reports are similar, probably known before coming in to the peer review, and there is a more extreme position and is to let the European Union to represent all of us. Well, this is a possibility and certainly will be of interest to know what of the three possibilities are the most convenient. Maybe it's not only a matter of seeing it now but we have also to look a little bit into the future and I would like probably to hear about that.

Mr. Bye: Professor Alonso has raised some very interesting topics there. My questions or comments were really related to the early bit of the discussion and maybe I could just mention those first. Taking up what **Mr. Lacoste** was saying, I think the Nuclear Safety Convention is going to be, as long as

it doesn't get turned into an adversarial combat, a demonstration of increasing the cooperation with all these other countries rather than a way of sitting in judgement over them, so I can see great advantages in this cooperation. The other question is, we are talking about very large numbers of countries being involved in this but at the moment we've only got eight ratifications from nuclear countries. The Convention comes into force when there are seventeen, so in fact the groupings could be either much smaller or much fewer groups, certainly on the first round of the Convention meetings. So trying to decide who's in what group now is, is perhaps a little bit premature. And also of course only countries who have actually ratified the Convention would be entitled to sit in at the meetings anyway. So we're looking at the golden age when everybody is signed onto it. I think. Maybe at the first time round, they might be rather fewer. Getting back to what **Professor Alonso** said, he very much alarmed me when he mentioned that should the European Community represent us, but of course the role of the international or the intranational bodies is that they cannot actually become sort of full ratified members of the Convention. Once the Convention's in force, they can become signatories, as I understand it, but this doesn't really give them the role of representing us and certainly, as no doubt you've guessed

from the UK point of view, we wouldn't be very keen on this.

Mr. Högberg: I don't think that there should be a joint Community representation there but in the steps go towards the ECO management on the review process. I had the privilege to work with **Professor Birkhoffer** on the INSAG report and review procedures which leads part of the discussions. So, based on this experience, I think that cooperation in preparing for the review conferences within the Community member countries is something that really should be explored. First I think it's a good idea that Community members are spread out in the different groups, maximizing Community influence on the review process if we coordinate ourselves a little bit before as we managed to do when handling the review process. Secondly, it was a basic idea in the INSAG report that there is nothing in the Convention to forbid it, on the contrary it encourages that maybe groups of countries go together when the national reports are there and discuss issues that seem to be the specially important so perhaps an outcome of this discussion would be that we would think about having a European Union preparatory meeting before the review process started, where we can also perhaps be a little bit franker with each other than we are in other fora.

Mr. Hulst: I would agree with your last suggestion provided it's obvious to all of us, that what you are thinking about is a meeting of the countries of the European Union. But we have to avoid the process of the Convention being permanent. We have put milestones, months before, not to have a permanent mechanism which is then becoming, very burdensome first, second inefficient, because, say, people would say, well that stuff of a Convention process continues on our shoulders everywhere, and we cannot do our job. Therefore we have tried to put some milestones. A meeting could be a good thing if it is in the milestone.

Mr. Samain: As to add something to what has been said, I will stress some consent of small countries with very small regulatory organization as said **Mr. Versteeg** a few moments ago. What we see with the reporting system is first that we are against, as **Mr. Hulst** has just said, against a permanent system. We are from a regulatory organization contrary to have also permanent representation and permanent work. Secondly, that we have to ensure that a reporting system will be efficient and in this case will use existing reports in each country and not make preference to both new documents with the only objective to apply the Convention. It's also a very important thing and I'm quite sure that this approach will also have the preference of Eastern countries. We should

not forget that Eastern countries are one of the main targets of the Convention. They will have, the same aspect of efficiency and we should not to be too strong, too time consuming for these countries when we can meet this stereotype of concern.

Mr. Kindelán: I have paid attention to your words because we have by law in force in our country to present to the Parliament twice per year a very detailed and very exhaustive report. It will be very sad for us to make another report for the Nuclear Safety Convention reviewing.

Mr. Hulst: The original first proposal was to have a national report and we still maintain that a published national report should be an annex of the national report. But, these were the Eastern countries who insisted of having an article-by-article report. So it was not our proposal. So, how could we say "no"? So the VVER club came and said like an article-by-article, and that was the German and Japanese task to say OK, but having also "chapeau" so that we clearly express a summary or comprehensive statement on each of the three major chapters.

Session IV

**Exchange of impressions about
the Convention on Radioactive
Waste**

Session IV: Exchange of impressions about the Convention on Radioactive Waste

Mr. Kindelán: The first rapporteur, **Mr. Samain**, has the floor.

Mr. Samain: Since I prepared my presentation just to come to Toledo, we have more documents than I expected to have, and we have the draft of the Chairman, but I would like to introduce some point. My point of view was not to review all the possible terms of the future Convention but to stress some points, some elements where we can reach consensus or some very tricky points. From the point of view of regulators, it's very important to be conscious that it is not that we will not reach a world coverage of our nuclear activities with only two conventions. It's a concern from some countries that we have a lot of conventions but I am sure that it had been recognized that we are sure two conventions do not cover all nuclear activities and it's important to know of the scope of this Waste Convention. As a point I want to stress is also that the scope also will cover the waste from mining of uranium ores, which will be covered with respect to exemption levels as determined for instance by the European guidelines and the Basic Safety Standards of the IAEA. The Convention should either not cover naturally occurring radioactive materials or

should allow some flexibility in all our regulators. Regarding the tricky point of waste produced during military use of those materials, well, many countries expressed interest of the inclusion of those radioactive wastes within the scope of the Waste Convention. Taking into account reservation raised from some countries, it would be useful to explore the extent to which coverage could be restricted to radioactive material which no longer has a military usefulness. Such an approach generally results in the coverage of military aids when concerned national department of defence express the willingness to be no longer involved in their management. However, like the Convention of Nuclear Safety, the Waste Convention should not affect rights and obligations under national law to protect classified information from disclosure. Nevertheless, they will give internationally legal framework to manage on a safe way radioactive materials, including spent fuel material arising from dismantling nuclear weapons. What about the technical principles? It has been agreed that the Safety Fundamentals for Radioactive Waste Management will be taken as a basis for the discussion of the technical content of the Convention. What about some obligations in the Convention? We can agree that our work will be facilitated to anyone who uses the experience gained in drafting the Nuclear Safety Convention and particularly

taking into account the reporting on a regular basis and the peer review arrangements. In relation to transportation and the Basle Convention, the waste convention should not conflict with the well-established regime governing the safe transport of radioactive material, regardless of whether it is considered as waste. The Waste Convention should not weaken the regime by creating a separate international transportation regime for radioactive waste. As to covering imports and exports of radioactive waste, the Code of Good Practice on the Transboundary Movement of Radioactive Waste represents an acceptable international consensus on their treatment and need no revision. And it will give the opportunity to satisfy the link with the Basle Convention which does not cover radioactive waste. Therefore, this Convention will balance out the Basle Convention as far as radioactive waste is concerned. The last point I will stress is regulatory independence. We must ensure the independence of regulatory people against people who manage radioactive waste. It's very important to formulate it in the Waste Convention. I will talk of this last very difficult point. It is also the possibility of regional, of multilateral cooperation to handle radioactive wastes. Why's this situation? Why the difficulty to analyze the fact that in some countries the law doesn't permit foreign waste? The first problem is that when it is forbidden to store

it is also forbidden to handle. It's two points. It will be interesting to consider when we can also build a regional centre in the future to handle radioactive waste, because we are sure that from the economical point of view, building a very expensive treatment installation for a small amount of radioactive waste could not be justified and it could be satisfactory if a lot of countries have their waste handled in other countries. The problem of storage, of processing waste, is also to be considered. There will be some solution on the basis of so called swap and we have a lot of experience with this type of agreement. Thank you.

Mr. Kindelán: Now it is the turn of our second rapporteur, **Mr. Högberg.**

Mr. Högberg: In preparing for this meeting I hadn't time to put anything down in writing but I certainly agree with what **Mr. Samain** said about what the main issues are. Certainly about the national responsibility of each country having to take care of its own waste on its own territory and the type of technical cooperation that the Convention should encourage will need some further discussions. Sweden, like France, is amongst those countries that have laws forbidding final disposal of foreign waste on our territory. But it does not exclude Swedish companies processing foreign waste in their facilities as long as it is returned and I believe

France has the same sort of arrangements. I remember that at that time we had reprocessing contracts. Certainly, technical cooperation should be encouraged in terms of methods and so on, but I believe that the Convention should be neutral to the extent that it shouldn't commit signatories to work towards regional solutions. This is wholly a national part, but it certainly should not exclude it either. It should, however, encourage technical cooperation. Evidently, the scope of the Convention with regard to reprocessing also needs some further discussion. Now, we have put some ideas on the table. I think reprocessing plants at the present time is a matter for only a few countries. On the other hand, I think you know that Sweden wants as few conventions as possible but, also apart from the national position, I think it is important that no country, no signatory of the Convention should be able to avoid commitments with regard to the safe long disposal of fission products from reprocessing or spent fuel, by just declaring an intention to reprocess or that it is an open option. So, the Convention must involve a clear commitment to solve the problem, financing whatever in one way or another. And then some issues are listed that may arise if not in the Convention text itself, maybe in its future implementation. Certainly, separation of regulatory and implementing functions is an interesting point where the government is responsible

for both functions and both are State authorities. On financing systems, not imposing undue burdens on future generations, you could say. Formally, of course, it's a State responsibility under the Convention but you can always discuss whether the polluter-pays-principle should apply in that context. I don't see this as a very crucial one. Certainly, transboundary considerations are covered by a number of other international conventions and they tend to pop up. For example, the Paris and Oslo Conventions and a few others. And, especially maybe in the long term perspective, where you have to realize that European borders have changed on very much shorter time scales than the time scales considered for administrative control of land use for repositories for some time, I think that this matter could deserve an interesting philosophical discussion in the review process. We'll see how much public participation in the siting process arises in the Convention. I believe that for Community members this is not a crucial issue because it's covered by the Environmental Impact Statement Directive, more or less, which will cover waste installations as well. But, as to review procedures, I think we have to say with the time table provided for here, that we can follow what is developing for the Nuclear Safety Convention. What I would like to focus on finally is that I think there remains a lot of work still to be done to reach a good con-

sensus in criteria and methods to demonstrate and verify safety, especially in long term perspectives. What are good practices?... Now, first I think you have what I call the selection of scenarios and time frames for safety assessment, performance assessment. And here I'm talking about high level waste or spent fuel. How to handle human intrusion?. Those who followed the American debate on that and the recent report from the National Academy of Sciences can see that there is still a lot of discussion on these issues. Then you have to discuss tolerable risk profiles in the long term perspective because you can always envisage some type of events that could cause doses above recommended ICRP levels for the most exposed group. You have issues then about protection of other living species which tends to pop up in the various areas. Our Radiation Protection Institute is now pursuing this matter. And then you have the almost philosophical, or at least theory of science, problem of how to demonstrate safety in very long time perspectives. If you look at spent fuel you are taking several half lives of plutonium and you are in the region of a hundred thousand years. And a lot of work has been done there but I think a lot of discussion among regulators still remains for reaching a convergence of opinions in this area, in the same way as we have achieved convergence of opinions in reactor safety, on what do we mean as regards good practices

in defence in depth, what can we do with probabilistic safety assessments and so on. And, cooperation on validation on models and data used in the performance assessment models, to continue with this type of activities which we see as very important. Some of this I think can be accommodated within the present and future framework programmes and we were a little bit concerned when we were told that maybe there would be no more money set aside for that particular area where such projects may come up in the IV Framework Programme. Another matter for regulatory concern, of course, is how can you translate assumptions made in the performance assessment of how geological surroundings influence canisters and so on, and the performance of canisters over packs, etcetera, into strict quality control requirements for the design, construction and operation of the repository so you can make the general public believe that, even in the long term perspective, the repository will function as intended and also have a discussion on the uncertainties involved. So, I think the conclusion for us as regulators is that this is an area where it might be fruitful to step up discussions and cooperation. Some of you may be aware that the Nuclear Energy Agency of the OECD is proposing at least a starting point for a workshop in the near future in this area. Thank you. That ends my introductory remarks.

Summary of the discussion

- The need to reach a good consensus in criteria and methods to demonstrate and verify safety of repositories, especially in long term perspectives was underlined.
- The political and social problems related to the waste management issue were analyzed.
- Difficulties for countries having a small number of nuclear power plants were pointed out and discussed in relation to eventual regional or international repositories of radioactive wastes.

Individual ideas expressed during the discussion follow.

Mr. Vuorinen: There has been some discussion about the problems of small countries by my colleagues here **Mr. Samain** and **Mr. Versteeg**. I am also from a small country. As soon as small countries have one single operating power plant, they face exactly the same problems as big countries with large programmes. What I would now say is completely my personal feelings, not an official opinion of Finland, but I made an observation that at least in the case of Finland, as a result of national and international groups of anti-nuclear people, politicians have made decisions which make the threshold for small countries to effectively use nuclear energy higher than it was previously. One thing is the attitude that waste is not allow-

ed to be transported to other countries. So regional solutions have been forbidden. My personal judgement is that if I consider the agreement made twenty six years ago with the Soviet Union, the best feature in that agreement was that it was agreed that the Soviet Union will take care of spent fuel. And, now our Parliament has forbidden that. And so it now results that we have to solve the problem ourselves. At the same time, it means that the Russians don't get any more Western money from our company and both sides have additional problems. That will not help the world to solve the waste problem. Unfortunately, there are many emotional attitudes which really, at least partly, originate from anti-nuclear sources, which increase the level of possibility, the threshold for small countries. But, of course we can solve that in our case also in good cooperation with other countries, so that I do not see from the Finnish standpoint any special problem but I would say to my colleagues that if your country can afford to operate one reactor, you have resources for a good regulatory organization. If you haven't, then please don't operate, don't use nuclear power. That is my attitude. And, that also concerns these Eastern countries so if they have resources for building nuclear power plants, they have resources to have a good regulatory organization.

Mr. Samain: I wish to immediately answer

what **Mr. Vuorinen** said. I fully agree with the statement naturally. What I will say is that the point arises when you have a regulatory body adapted to the type and to the function we have to do with a rather restricted nuclear power, and additional obligations arrive (and I stress international obligations from the US, from also the Convention) it could be we have to give the right prioritization. What is the due work of a regulatory body? It is to control its own nuclear power station at home. It's not to issue a report to every international body. This may be the problem in such a case. I fully agree that we have to manage our own problem at home. But, it could sometimes be difficult to handle with additional obligations from outside. It's a point.

Mr. Naschi: I agree that some obligation coming from outside can complicate life a lot. Now, the purpose of my intervention is to throw something onto the table for reflection. I have no suggestion, I have no proposal, just for reflection. And the problem is that this Convention which will follow the scheme of the Safety Convention has a scope which is not satisfying in my opinion. The problem is that this is a Waste Management Convention and this is very clear. But, there is the problem of some kind of plant, a pure fabrication facility, which is not covered either by the Safety Convention or by this one if we were to restrict the scope

of the Convention strictly to waste management. On the other hand, we must reflect on the fact that this Convention's primary objective is to give some assurance to the general public that there is a kind of confrontation between East and West, that we are trying to reach a common understanding over the safety and the common level of protection of population and so on. And one of the problems most discussed in public is the problem of reprocessing plants in Eastern and also Western countries and I wonder what we can do about it. To have another Convention? Is it worthwhile to have another Convention? Or is it better to have a Convention for Fuel Cycle and Waste Management? Just to call it something. I don't know, it's just to look at the problem, because we cannot forget that this kind of plant is outside both Conventions. It is worthwhile to think about it.

Mr. Högberg: I would like to return briefly to the issue mentioned by **Professor Vuorinen** and **Mr. Samain** on this, call it regional cooperation. Based on my own experience in going out to municipalities, discussing siting of final repositories, it's very clear that it is quite difficult to achieve local acceptance for national waste. It may be recognized that this is a national problem, but at local level you vastly increase the problems if you say you are going to build a repository for waste from other

countries. The situation may be different in some countries, but I think this is a basic reason for the legislation that, for example, Sweden has introduced. Our legislation does not prohibit our sending waste abroad under very stringent conditions and I think if it's going to work you must first ensure that the recipient country has a repository which is licensed with local acceptance for foreign waste, otherwise you will just contribute to a number of problems in the recipient countries in the long run and you may even find, a number of years in the future, that you have a political discussion in the recipient country as regards sending back what the previous government accepted from other countries. So it's not a technical problem, it's a political problem where you have to realize what you can get acceptance for.

Mr. Kindelán: I should like to underline this last statement which is in agreement with the others, when facing the political problem. The fact is that waste management is now the focal point of nuclear energy. At least it looks like being the focal point of nuclear energy. You must remember that in all countries, mainly mine, no anti-nuclear movement speaks any more about security in power plants. I don't hear anything about that. They speak all the time about nuclear waste. Yesterday morning I gave a press conference here before

you all arrived. There were twelve journalists. None asked me anything about European safety. They just asked me about waste management. They asked me if there were any preparations being made to site a repository in this particular region. In Spain we have 17 Autonomous Regions, "Lande". Eight of them have already voted in Parliament. They refuse to have radioactive waste in their regions. But I agree with Mr. Vuorinen that in spite of the size of the country, there is no hope, in this present climate, for sending waste anywhere else. Because the problem's not technical, the problem is political so, it will be very difficult to site a repository in other countries. Thought should be given though that the rationality of exporting will be greater than the non-rationality of rejecting technical changes. And in that situation, a few months ago I had to give a speech in Vienna about the political problems of this subject and I still think that it is the only problem which must concern us because there are still technical problems to be solved, of course, which we are sure will be solved in the not too distant future but getting over the political problem is very difficult. Here I am optimistic, the international view helps. It would not be enough, of course, but it helps. So, to this effect, I agree the Convention can be good, because it can be a platform of propaganda. I can see that very clearly. And of course, at all times, I would

repeat that technical solutions be found, that countries agree with these solutions and although it will not be a final solution, it will help to get the message across, that something must be done.

Mr. Vuorinen: Just for information. Last week a representative of Minatom from Russia reported the plans to build a huge international nuclear waste storage in the NOVAYASEMIA area. Well, the truth is that the Russians have a large amount of nuclear waste just like the Americans as a result of military use and they need help. There is no money as **Mr. Lacoste** has said. There is no money but even small countries need a lot of money to solve their waste problems. But now it is politically impossible to participate in this international project even though it would be in the global interest to participate in this project and try to help them to solve the problem properly, because that must be solved. It is a very bad situation in that sense.

Mr. Lacoste: I must say that I fully agree with **Mr. Kindelán**. I think that in Western countries there is no hope at all for establishing any kind of regional, international waste disposal. As soon as we start speaking of regional international waste disposal, that would mean the end of our national project. I think this is the actual situation, saying this is not the international situation but

this is the real situation. Maybe things are different on the other side of Europe. If there is any hope of regional or international waste disposal in Russia or somewhere like that, of course, we should give help but I think that in Western countries there is no hope at all to establish any kind of international or regional waste disposal. But, if we think on the long term what is regional disposal and then if it could be a national waste disposal, that, in the end, becomes open to other countries, so maybe it's a way to find a solution, but not a short term one. That means that each country should have to make the necessary efforts in order to try to find a national solution. I see no way to do anything else.

Mr. Alonso: I really agree that there are political and social problems related to this waste management issue. But I would now like to refer to some of the more technical difficulties I see in this Convention on Radioactive Waste which I believe will be very different from those of the Nuclear Safety Convention because in the Nuclear Safety Convention there is a lot of uniformity in the problem to be solved, you are thinking of nuclear power plants alone. But in this particular case you have a wide variety of very extreme problems going from very simple ones to very complex ones. So, I don't know how the people who are going to write the Convention will manage

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this wide spectrum of programmes. I hope they manage it well but there could be a great difficulty. First of all, from the social point of view, I believe that Society should be more concerned with releases both in gas and liquid form than in solid waste management. Certainly, when releases occur, they will affect the population but we know as technical people that those releases are very below the limits so we ourselves know that there are no great problems. Certainly Society should be concerned with that much more than with solid waste. And now with regard to solid waste. There are at least two different types. The cemented one, solid fine waste from nuclear power plant operation and also from some medical applications, and spent fuel elements. And there are certainly big differences between these two. The spent fuel elements can themselves be considered as waste, which probably is not a very ethical position because of the intrinsic value still remaining in the spent fuel element. All this can be processed and then produce other type of waste. And certainly this is where the problem is. There are at once sources from civil applications and from the military and I believe that the origin of this particular Convention lies mainly in waste causing concern in some countries, mainly north European countries, which were very close to the military waste produced by the Soviet Union. At least the main concern and the main push for the

Convention comes or came from this particular concern. So probably military waste should come into the picture because of its importance. Then, there are different technologies and different problems involved. It's a very wide tour in scope for the low and intermediate waste and I believe that the technology is already in place. Those of you who will be visiting El Cabril tomorrow will see that there is very good technology and we should be proud of that. You will find the same thing in other countries and Society and politicians should not be concerned at all with this intermediate and low level waste. The problem is practically solved and the Convention can very easily cover that. Now, when dealing with waste from nuclear power plant operation, the solution and the problem is very different. It was Mr. Högberg, when explaining the difficulties with performance assessment, who very clearly pointed out that we have no models for the long term behaviour of this waste. We have problems with selecting the scenarios for our evaluation, problems with defining tolerable risk profiles. There is no really good technical criteria for site selection and there are no basic design criteria for canisters and for many other technical aspects. So the conclusion is very clear for that particular problem. We really don't know enough even to have, let's say, the most basic regulatory approach. So, it seems to me that if all this goes into a

Convention, it will be binding on us if we finally ratify and sign the Convention. It's a little bit difficult at this moment and I believe we should think deeply on having the Convention deal with this particular problem for which a lot of research and basic understanding and definition are still really necessary.

Session V

**Harmonization of requirements:
Is this desirable?
Is this possible?**

Session V: Harmonization of requirements: Is this desirable? Is this possible?

Mr. Kindelán: Let's move on to the matter of this fifth session. I should like to ask **Mr. Lacoste** to start, as our first rapporteur.

Mr. Lacoste: The topic is harmonization of requirements. I will try to address three issues. The first one is, what does harmonization of requirements mean?. The second is, is such harmonization desirable? And the third issue is, is it possible or is it feasible? So, I will begin with the first issue, what does harmonization of requirements mean? My answer is this. For me, harmonization of requirements means harmonization of general goals or of objectives as opposed to harmonized approaches. That means we should not interfere with a bad question or probabilistic approach or, better still, deterministic approach. I think this question is on another level. And I think this is opposed to harmonization of detailed requirements. That means we should not deal at this stage with the question of, for instance, redundancy, twice 100% redundancy or four times 50% redundancy. That means that we should remain at the level of a safety goal objective at the beginning. That's the first issue. The second issue for me is, is such harmonization desirable? And I will answer, such harmonization is not only desirable but I think that such harm-

onization is needed. And the explanation is quite clear. It means that public opinion cannot understand why something that is said to be good in one country, is said to be not good enough in another. It means that public opinion is waiting that if a design satisfies the safety requirements in one country, there should not be any major difficulty for it to be different in another country. That means that safety requirements should not be an argument for holding back trade. And I think this is a way of showing what public opinion is expecting from us. If a reactor is good enough for one country, it should be good enough also for another European Union country. My third issue is, is such harmonization possible? It's not obvious to answer "yes", because France has experience in international cooperation and especially bi-lateral cooperation, and experience has shown us two things. First, just to understand what is going on in another country, takes quite a lot of time in itself. I say that with regard to such cooperation with Spain, Great Britain, Germany. It took us something like ten years or sometimes fifteen years trying to understand what was going on in the other country. I think that to do a good job in harmonization needs that we work together on a real topic, not some kind of literary requirement. A real topic is to work on a real plant or a real project and I think that is the only way to proceed harmonization. Thank you Mr. Chairman.

Mr. Kindelán: Our second rapporteur is **Mr. Vuorinen**.

Mr. Vuorinen: Well, if you allow me, Mr. Chairman, a paper has been handed out to you where you can read, if you have time, a modified lecture which in fact was prepared two years ago. I tried to modify it somewhat to meet today's requirements. But it's partly an old text. First, what is studied there are previous global efforts towards harmonization under the umbrella of the International Atomic Energy Agency. And then harmonization within the European Commission and some examples of current differences and similarities are mentioned. There are similarities in licensing requirements, and then there is a very short discussion on how to proceed further forward. But mainly I understand what **Mr. Lacoste** says. I think along the same lines. There are very different starting points between different national systems so that in big countries there is a long tradition of weapon systems, development of nuclear power for military use. And then we've been talking about small countries. At least small countries came into the picture much later and some of us small countries have to rely on imports, so it's no wonder that starting points are very different. There have been different technical cultures so that different standards have been used. Well, we very recently learnt that the UK moved over completely to the

metric system and they had already changed their currency system to a decimal system earlier so that they and many countries have taken steps to harmonization! Finally, there was a statement that there is political pressure for harmonization. It's quite evident and that is connected through public opinion as **Mr. Lacoste** mentioned. The Vienna Agency has done a lot of things with new programmes which commenced twenty years ago. We played certain important roles in harmonization even if we don't admit it, but it has a certain effect. INSAG-3 perhaps also plays for harmonization, and in fact there is a new safety document, Safety Principles for Future Nuclear Power Plants which is Technical Document number, I guess, 801 which has just been published a couple of months ago. So, I'm sure that it will also have a harmonizing effect. I will not talk about the European Community very much and at the same time I could say a few words about the OECD in fact. I personally followed Nuclear Energy Agency work 20 years within the framework of CSNI and later in the regulatory FAS Commission and, well, whether you agree or not, my analysis says that OECD frames have had certain harmonizing effects. What is covering me as a representative of a small country is that there is a tendency that representatives of large countries which really developed nuclear power, were not in the past very

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willing to talk about developing safety requirements in the early stages. They've been rather reserved. A couple of times I heard an explanation that, well, if you start to talk about a plant tomorrow, in some countries plants will come as a requirement so that, I understand this hesitation not to openly discuss that on paper what is really going on in several countries. In this connection I would like further development in openly discussing what is really going on also in the harmonization process. Well, in my paper there is some discussion about real differences and similarities... I do not agree with **Mr. Naschi** who said that you have to look at the real differences in nuclear safety requirements with a microscope. There are real differences from country to country. Without a microscope, they can be seen but of course it is not so important. Well, on the one hand they cannot be understood, they depend on historical developments and cultural differences, on size of network and so on. There are many things. There are a couple of things which have just been mentioned. If you study these things you will find not only microscopic differences but real differences. How to proceed towards greater harmony? Well, I agree with **Mr. Lacoste** in that I understand there is a need for further harmonization and there are some prospects, some possibilities. But one must be very careful. I do not agree completely that we can't do very much with trying to develop

safety objectives. Maybe I'm wrong, but I have a personal opinion that one of the difficulties at the moment is that safety objectives in most countries are very difficult to explain to people. One might question if there is a need for more detailed safety objectives but when discussing the Safety Convention and the Waste Management Convention today for example, there were no very clear safety objectives in both those areas, and these can also be provided in public discussion so that our partners understand what we mean. Better to understand than misunderstand. If you allow **Mr. Chairman**, I would like to mention two specific, small aspects which I think may have some benefit in harmonization. I mentioned the language problem in the ECURIE information system yesterday. I have a small paper. If you allow I will hand out this paper. Another area which we were discussing earlier also with **Mr. Lacoste** and some of the members is the INES scale. **Mr. Lacoste** once mentioned very nicely that we have developed a communications scale for the public but unfortunately this manual does not show how to use that scale. It's a document of seventy pages, so somebody made that science in a way and I have also a small paper for your consideration which in my understanding is worth studying and thinking about, especially thinking about the most used part of a scale with level 0, 1, 2, 3. And, well, that includes certain diff-

iculties because we are proposing our system and in fact we are partly using it already now, assuming that you have a PSA, living PSA for your plants. We have made a proposal to point this inner scale towards a living PSA and I argue that our system is much better than the Agency system. The weakness, for example, of the Agency system is that it doesn't provide information about the actual severity of an accident but it provides information about formal changes in the in-depth defence system which might be very different to the basic safety characteristics of a plant.

Mr. Kindelán: Now our third rapporteur, **Mr. Marqués de Carvalho.**

Mr. Marqués de Carvalho: If I may use the definition of consensus we used this morning, maybe I don't oppose the former two speakers!. Anyway, I think I have some nuance in the way I understand harmonization. Let me start by stating that I think harmonization is a must and cannot be avoided. The problem is how far we go, how deep we go, what are the fields to be included. Starting from the political argument, let me simplify that I would look at Community as Common Unity, say common standards, and not only common goals. Even the yardsticks to measure those goals or how they are achieved. We don't have harmonized approaches on how to evaluate, how to judge. We are

involved in a semantic discussion with opponents. So, I know that the depth of discussion is always difficult to define beforehand, a priori, but we have to go further than just proposing goals if we wish to be credible. One thing that crosses my mind is, why should we have harmonized approaches? Maybe if we were to live just in an environment of well educated, nuclear educated people, we could survive without having even common approaches to define goals like **Mr. Naschi** said this morning. We get the idea or the feeling that we are closed, at least in some countries, that the process gives an assurance of the same quality. But the problem is that we are not isolated from the environment, from other people, and one of the reasons to be pushed into this type of exercise is to be credible among other people that challenge the uniformity of the safety of the different plants, to be credible, to have the trust of the people. And, if we intend to be trusted by other people, we have to show not only the reasons or the reasoning, the background behind our different technological approaches. We have also to show that we really know what we are saying. And now comes my psychological argument. If different experts show different approaches, they are perceived as not knowing enough about the subject. Among the common people, when an opinion is changed, if people do not propose the same yardsticks to measure things, the same type of algorithms to solve

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the problems, they will be perceived as not being mature enough. This has been historically seen, I think, in the past, with discussions that faded out but went, when for instance ICRP changed standards, and this is also behind recent discussions on again changing basic radiation protection standards and is still going on in there. There are disputes about goals. In this case goals are doses that shall be targeted and the argument going on on anti-nuclear groups is that this is because we don't know enough. We know that we are doing even perhaps more than is needed but we are perceived as being ignorant. I think that the question of perception is a must also and has to be taken very carefully. Well, using a simplified model of human behaviour, I would recall that people's behaviour is controlled by previous, or a priori attitudes which are controlled by beliefs, and beliefs do not change rationally. Beliefs change emotionally, change because we fear something or we love something or someone. Beliefs change by the primitive searches of our mind, not by the rational, most recently developed ones. And this kind of attitude is also feedback on the way people perceive differences between their own behaviour and the behaviour of others. You know those feedback cycles from the control theory that sometimes work well if the reality against which they are checked does not change, if we are trying to see whether a theory works and the experiment can

be reproduced. But in Social Science or in social behaviour there is nothing stable, so people check their behaviour most of the time against the behaviour of sympathetic ones or opponents and they are biased. It's difficult to break the circles when we move. Even in the nuclear community, we move among ourselves and we say sympathetic things to each other. And we try to improve or enhance our common beliefs. And the anti-nuclear people do the same among themselves. And the common citizen finds himself also in other circles of beliefs. And to break those circles of beliefs is a kind of religious conversion. We have to have a flash in our mind and this does not come by rationally thinking about things. We may encounter some catastrophe and I don't believe catastrophes in the nuclear field will work on our side. It would probably work against nuclear people. And, so, I think the idea that knowledge has to be universal works against us and against the idea that we can just have common goals and not common standards and common tools to evaluate those things. Everyone here is familiar with benchmark problems, benchmark calculations and so on, and has had the opportunity to see that even with a common tool, results are very different and that's one argument against PSAs and so on. And it takes a lot of time in maybe training and familiarization, meaning working together before you get similar results with the same

tools. How can one believe that it will be credible to people's minds when they don't have the tools, when they ask each other and find they have a different tool, and different approaches, and different redundancies. I know that historically all these things are something very heavy. We cannot just say history's over. We have to cope with that and also to confess that we cannot change everything overnight, of course, and it's a lengthy process, but we have to show motivation, and will to change, to have common standards if we wish to be credible. And what is to be harmonized? Well, I think we are in a political arena, so the agenda is not our agenda. It will be the issue of the moment that has to be taken and it will change quickly. And probably now, as our Spanish friends told us, the most important issues are not about the safety of nuclear power plants, at least Western ones. The problem is rad-waste. What we really know but not, perhaps, enough to make standards. That's also a good challenge, and an optimistic one because if we have not already developed standards, it's time for getting together and trying to have common standards from the very beginning, dividing these historical problems we have with technology. But there are a number of things also that I think are very frustrating in the international arena and I've sometimes called up to challenge the maturity of the nuclear industry. Third party liability, for instance. That's a

thing that's far from being harmonized. And it's not really a technical problem. The problems are really very very difficult ones but they are not technical in nature. But they can be raised as a way of showing that nobody is aware of how catastrophic an accident can be. Because they will say that everybody has different views of the result of a very big accident, or a more likely accident. So I think third party liability would be a good subject for trying to harmonize. And, another point is something connected with what **Mr. Vuorinen** said before on informing the public, not only in stress situations but beforehand. We have a resolution from our Ministers. For me, it's a very confusing resolution. It was not from the Commission. The Commission has many powers but it was the Ministers that took the decision of writing a Directive to inform the public. We have looked at some ways of dealing with this Directive in some of the countries and we see there are many different ways of doing it or proposing to do it and, in our country we don't know exactly how to deal with this Directive. Because maybe it was written too quickly, without much discussion before, but that's one thing that maybe we could try to discuss. And, finally, I think that there is the question of the market argument. The market argument, an argument that has to be a harmonization not only of goals but all those things that can make competition fair or unfair. And it play-

ed a role in the past. Let me tell you that some time in the distant past, when we were thinking about nuclear power plants, we were asked in Portugal what standards were we to use, and this was possibly crucial at the time because the type of standards we would use to judge different designs could be the factor for choosing the supplier. And for export-import effect they'd done many different standards. It's also a market effect. And to finish my thought-provoking speech, I would also like to challenge the possibility of using the Safety Convention and probably writing the Radwaste Convention if we don't agree to common standards that go deeper than just goals. When the Safety Convention was proposed in the beginning, at least some countries thought it could be the institutional tool for international inspection, remember. It was bettered and we stick to a different approach and it's written differently of course but the idea behind that Convention was to have an Atomic Energy Agency headquarters, international over all the world Inspectorates!. There were some good Ministers that took that on. Of course, it's not feasible and that's why it was not implemented that way. But the political reason behind that, was that at that time, the message to convey to the public was "we use all the same very good excellent standards", "safety is our first priority" and so on. If we now go to just verification of goals or trying to verify goals, I think the Convention may

well be thought of as cosmetic, as being a kind of hidden way of presenting itself to the world, just trying to put things behind curtains. And if we don't have common standards for radwaste, we'll probably run into one of the two things that were presented in the morning. One by Mr. Alonso, the Radwaste Convention as a trap, where we put what we don't know how to solve afterwards, or just a political wishful convention, that means nothing technically. I think that the challenge before us is that. Shall we stick to our little advantage on the technological side or shall we be more generous?. And the problem is that when the political people wish to have common things, they write them down and we had it. We have a common approach to safeguards. It was important enough to force technical people to follow, so common things occur sometimes by force, like introducing linguistics, Latin in the Roman Empire, or English today. We try to speak English, even if we don't do it correctly. We never achieve very good English, but that's our common standard and why? By force, by force, by force. Well, taking advantage of the last example, I think we have to be natural in producing harmonization. We took a common language, a useful language, not an artificial language. So sometimes, harmonization means taking one side but keeping it for everybody.

Summary of the discussion

- The main topic of discussion was “what does harmonization of requirements mean?”. Several countries believe that it means harmonization of general safety goals or objectives as opposed to harmonization of detailed requirements and, in such a case, harmonization is not only desirable but needed. Other countries consider that not only the harmonization of safety goals is needed but also the harmonization of standards and approaches on how to evaluate safety.
- Different legal systems and ideosyncrasies in the countries were mentioned as the main issue for approaches having to be different. Working together on real engineering projects rather than trying to harmonize just ideas was proposed as one of the ways to be followed, supplemented by the temporary exchange of people among national authorities.
- Differences from the standpoint of countries with small or very developed nuclear programmes were underlined.
- The importance of the third partly liability issue was pointed out.
- Differences in emergency preparedness in Community countries were mentioned and the importance of public and inter-agency communication was highlighted.

Individual ideas expressed during the meeting

follow.

Mr. Högberg: We agree very much with the approach proposed by **Mr. Lacoste** on this matter. I think the example of safeguard standards is a very bad one. We had very detailed standards on safeguards and they did not prevent Iraq, they did not prevent North Korea. So, here we stand with very good international detailed standards, but we measure what Governments declare and not what they do, with the former system. So, on the other hand I would say when you go to goals, to objectives, and I would also include methods of demonstration, you ensure a good quality of verifying that goals and objectives are really achieved. But going to very detailed technical standards, describing technical solutions and so on, I think, would only lead to us spending a lot of time in writing things down on paper which do not produce actual results. Like **Mr. Lacoste** and also **Mr. Vuorinen** said, I think you have to look at real projects such as the new European reactor and I think this will on its own set a good new standard, not standards, but a good technical standard if it succeeds. I share the view that it would appear that Europe is moving ahead of developments in the United States and Japan. We are going farther because we are a densely populated area with also a lot of concern as regards what happens in neighbouring countries and I think this is a good thing.

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And I think we should be very clear that safety goals set for the next generation of European reactors are more severe than for the present generation of reactors. But we should not be too concerned about having standards that fit all generations because they will be counter productive to technical development and safety development. And, so, for me it's simply a matter of let's see if we can have a very good standard for a new European reactor and then it may be up to each and every country to see how far we should go in trying to reach a comparable level of safety with the existing reactors if they are going to operate for another twenty years or so. This is a concern for myself and my country at present. If there is a political decision to go ahead with operation on present nuclear power plants, beyond the year 2010 and approaching the magic year 2020, can we really operate plants with design solutions in every way dating back to the sixties and seventies which were designed on a quite different knowledge basis with whether it concerns design solutions?. Some are still good and can remain. They've been proven. In others, the choice of certain materials has been less well founded. In other cases, technology has run away, you don't design control systems in the way you did in the sixties and seventies. But this is another world. Let's start with a good technical standard for the next generation.

Mr. Bye: I'd just really like to add a comment to what **Mr. Lacoste** said about the work that DSIN and ourselves have been doing. We set out sort of to look at harmonization and found really that we didn't understand where the French were coming from and they didn't understand where we were coming from and the early meetings were very much a case of, I think, our people saying "no, we're doing it right and you're doing it wrong" and the other way round. And it took a little time to get round that, but it rapidly became evident that because of different legal systems in the countries, very different legal systems, the approach has to be different. But it's the end result that really matters and the only way that we've been able to sort of draw this together is by actually working on real engineering projects rather than sort of just ideas. It had to be on real subjects and that's the way we're concentrating the bit of work we're doing between us at the moment.

Mr. Vuorinen: I will repeat maybe two or three points which are very different from the standpoint of a small country and a large country. We are facing a problem at the moment. Whether there is a need to design the containment to sustain a hydrogen explosion. We are facing the problem of whether the containment has to be designed to survive core melt through the bottom of the vessel. We face the problem of maybe

requiring a controlled pressure release valve system in pressurised water reactors. These are three very technical examples in addition to the fact that we are facing a problem of how to draw up an approval process in considering the acceptance of software in protection systems. All these examples are very expensive, very difficult. If there is a different approach from country to country either in accepting or not accepting or overlooking or not overlooking these problems my personal understanding is that this creates European problems. **Mr. Carvalho** mentioned one matter which I used to also raise often in a meeting like this where safety people meet, but this matter very seldom draws attention and it is the matter of third party liability. Safety people do not normally discuss this issue but well, the Eastern countries. They are carefully examining whether to join the Paris Convention, the Vienna Convention and so on. It means whether these Eastern countries should take a certain part of responsibility for what's going on in Eastern reactors. If there is an understanding that sooner or later there will be a large consortia in Europe, like there is in fact in the United States now, there will be more interaction between lawyers, who control the third party liability agreement development completely, and safety experts. Whether we like it or not, that's evident and that means if there is no harmonization, there will be interesting discussions, so

that, my strong belief is that if there is to be a huge development of nuclear power in Europe within twenty years or so there will be much more thoroughgoing harmonization than there is today.

Mr. Naschi: This morning I gave the definition of consensus. So, to avoid my acceptance being applied by consensus to what was said, I must say what I think about it. I agree with **Mr. Lacoste's** opinion, that the licenseability of a plant should be the same in different countries, at least at European Community level. But it is a long way to reach such a real harmonization. It's not a problem to agree on safety goals, because agreement on safety goals is not very difficult. The actual problem is to translate these safety goals into standards and regulations. This include the interpretation of the final consequences of an accident. You know that I usually point out the big difference we have in Europe in the emergency preparedness. I don't understand, and I wonder what public opinion would understand, why emergency preparedness is so different in France, in Spain, in Italy, in Germany, etc. There's no comparison on emergency preparedness among Community countries. Then, what does it mean?. It means that the interpretation of the final scenario of a severe accident is different among our countries. Harmonization is not only to agree on safety goals. It's also to interpret this scenario of

different situations in order to avoid these macroscopic differences among us, which is also, I am convinced, the base of anti-nuclear contesting. Then, I agree with what **Mr. Lacoste** said. But, the problem must be dealt with in its whole extension, not only as safety goals.

Mr. Alonso: In this Session V, the title is "Harmonization of Requirements" and two questions appear there: "Is this desirable?" and "Is this possible?" Well, the answer to the first question in my opinion is very clearly "yes", it is. **Marqués de Carvalho** was very strong in saying that it is a "must". Some other speakers have been milder. Of course, it depends on the extent to which you are going to have harmonization. Do you want to harmonize all the details? This may not be good but if you refer only to the basic requirements, in that case I think it is a must. The second question is, "is this possible?" And my answer is simple. I believe it is everybody's answer. It is very difficult. I believe that **Mr. Willby** and **Mr. Bye** very clearly say that there are different legal systems in the different countries and, of course, regarding legal systems there is a break for harmonisation. There are different idiosyncrasies in our countries, which really do make a difference also, and we have different cultures too and this also makes a difference. If you allow, I will tell you the experience we have faced in Spain on harm-

onization and how difficult it is. We in Spain may be considered as a qualified importer of nuclear technology and this means that we have imported all our nuclear power plants. But, at the same time, we have significantly participated in the design and construction of those plants and we are certainly fully responsible for their operation. So we are more than an importer. As you know, we have imported plants from France, from the USA and lastly from Germany. And it is our experience that when we imported the American plants, it was very, very easy for us to harmonize our, at the time, preliminary requirements with those originating from the United States. When we imported the Vandellós plant from France, it was very easy for us to harmonize our preliminary requirements with French requirements. And when we imported the Trillo plant from Germany, the same thing happened. So harmonization was possible on an individual basis but this of course does not mean that the three plants were harmonized. So, every one was very different. We really tried very hard in the French case to harmonize requirements with the prior experience we had with American plants and it was impossible. The solution was to follow the French way and in the case of Trillo, we tried even harder and it was also difficult, so this is an experience of how difficult it is to harmonize. But, certainly, we have a certain responsibility within our

countries to at least harmonize as much as possible. In dealings that the European Union has with the Eastern European countries in Vienna, which is the place I know best, in this particular endeavour, we are preaching very hard to the Eastern regulatory authorities that construction and operation of their plants does not comply with Western standards. And they fight back, and I believe they're right in doing so because they say, well tell us what the Western standard is because we don't see it. And this is very clear. So, certainly if we are firm in telling these people that they should follow our standards, we had better prepare a set of harmonized standards. You have mentioned the problem with Kozloduy and that is a problem of pressure vessel embrittlement and I don't believe there is a common standard in the West on pressure vessel embrittlement. There are several opinions on that. But this of course does not mean I am in favour of what the Bulgarian authorities have decided. No, but certainly they are right to a certain extent when they ask us to be more specific. Certainly, **Monsieur Lacoste** is right. Harmonisation should come with a given project and the EPR is a good project, but this has to be open not only to regulatory authorities but also to possible users and buyers of these reactors. And apart from that, if we reach harmonization within, let's say, that project, what about the Americans and the Japanese and

the Russians?. They are also suppliers of nuclear technology and they of course will create their own circles of opinion and they will try to harmonize their projects. So harmonization is going to be difficult even if we all adhere to the idea of the EPR. It will be a partial harmonization anyway.

Mr. Caro: I think, according to what has been said about harmonizing requirements in the last half an hour or so, that we all basically agree. However, I should like to try and give you my own points of view in order to make myself clear. Certainly, **Mr. Marqués de Carvalho** said something very clear. And **Commissioner Alonso** also said the same. Harmonization is a must. Certainly it is. It is a must in all kinds of international activities. And nuclear energy, nuclear business, is an international activity. So, we need a certain amount of harmonization. But then **Monsieur Lacoste** said, "but what is harmonization?" And this is the key question in my opinion. Harmonization does not necessarily mean unification, so to say. It doesn't mean that all requirements have to be the same. Certainly not. And I think, and this is my opinion on this topic, that dealing with nuclear power plants, what is important from our point of view is safety. I think we have enough harmonized. Our nuclear power plants are very well harmonized from the point of view of safety and this is the most important point of view

in my opinion as a regulator. And I'm speaking quantitatively. I mean, all our nuclear power plants in our part of the world have a global safety figure which could be between 10-5, 10-6 or whatever it is around this figure. That means they are quantified enough. I shouldn't pay too much attention to the fact that in some intermediate steps, quantitative evaluation should be different. **Mr. Vuorinen** said about some quantitative evaluation of intermediate steps deferring by a factor of one hundred. Well, this is quite a figure indeed. However the point to which I would pay attention should specifically be the overall quantitative figure. This is my opinion in this issue. It transpires, then, that it is in the important issues where harmonizing is already well fulfilled. What do we, in our West European countries, have to do? Well, I should say that it is necessary to pay attention to the formal aspects of harmonization because the fundamental aspects are already well taken into account. The formal aspects could be what has already been said by **Commissioner Alonso**. We are having or we had a lot of difficulties in something which I think is a formal aspect. And there's the technical specifications of our nuclear power plants. I mean analysis based on the technical specifications according to the US model, is what we have developed best. When we tried to apply that to our Siemens plant, we found some difficulties because the system was

different. But it doesn't mean that one plant or the other were not harmonic from the point of view of safety. They definitely are. So it is on this kind of formal aspect where I should put some emphasis. **Mr. Marqués de Carvalho**, as part of the presentation, said something about the psychological aspects and this is very important. And I could comment on that in another chapter: the International Nuclear Event Scale. It was not quite clear what an event was although it is better now. As simple as that. And it happened that whilst just analyzing the plant in operation, we found something that was not quite all right and we said, this is an event. But some other countries would not have qualified this as an event. And so when we all publish the final results of every year together in this continent of ours, they could say that the Spaniards are very bad at operating nuclear power plants, just because we were stricter or because we did not understand the meaning of event in the same way. This is harmonization for me. I would lay maximum importance as far as harmonizing is concerned on issues where there is a certain interface between countries. And I'm talking obviously of emergency preparedness. I'm happy to read here in the communication distributed by **Mr. Vuorinen** that in his country communication, as far as emergency preparedness is concerned, is receiving maximum attention or he insists on having maximum attention

to communication. This is quite all right. We need communication for that. But it is not only the hardware of communication. It is, who is going to be communicated? Who?. And this is what **Mr. Naschi** said. It's absolutely different from country to country. Emergencies in one country are looked after by the police, in other countries by the army; in other countries with a Federal system, the organization is absolutely different. And so on and so forth. Are we sure that even if we have a very good communication system between our European countries, the people who are communicated are at the same level?. Are they homogeneous, so to say? Are they harmonized? Well, this issue, I think, emergency preparedness, has been given a lot of attention in Europe. At least in Europe. And we feel very strongly about that. But it still happens that the effects of a nuclear accident are transboundary and this is something we have to pay attention to. This is something which is to be harmonized in my opinion. And returning once more to the individual example, about what we have already fulfilled from the point of view of harmonizing, saying that our nuclear power plants are harmonized from the essential standpoint because overall safety is within a rather small limit, 10^{-6} , so looking at the Eastern countries, should they have carried out a PSA analysis a couple of years ago, four years ago, I shouldn't say those coun-

tries should get this kind of a quantitative result. So from that standpoint those nuclear power plants were not on the same level of harmony as ours are.

Mr. Lacoste: I would like to address four issues. The first one is about emergency preparedness. I must say that I don't agree with **Mr. Naschi**. Maybe because I think that the main differences between countries in Europe is about emergency preparedness and that is an in-depth difference. I think the main differences between us are differences as far as communication is concerned. Maybe we do not have the same communication policy about the nuclear base on emergency preparedness. This has already been said but I think that harmonization is not at all uniformity, is not at all unification. For me, harmonization of goals or harmonization of objectives means that we must agree on goals, on objectives. If different means are used in order to achieve these goals, we must know why we use different methods or different ways. And I come to issue number three. If we look at the worldwide market for nuclear reactors in the year 2010, 2020 or 2050. I think that probably there will be three, four or five types of reactor available on the market, one or two from Europe, one or two from the United States, one or two from South East Asia, I don't know if they will be Chinese, Japanese, Korean, or let us say between three or six

then. And then I think that a good question asked by public opinion will be "Do we know the different types of reactor?", a question to we safety authorities. Do you know these types of reactors?. What can you do about them? Can you assure us that they are on the same level of safety? Can you assure us that they should be accepted in any kind of country?. This is a good question. And this question is a question that deals with safety goals, some kind of assurance about safety goals achieved, even by different means. My other, fourth issue. I think we are talking about very serious issues and I think that there is something, a topic, on which none of us are good. I think that as soon as we begin to talk about harmonization, about common thinking, about safety goals and safety issues, we should be quite sure of understanding each other. And I do not think this is possible if people on our staff have not had the opportunity to spend training periods or working periods working in another safety authority. I think we should deal with an important issue, which is how to organize exchanges of people between us, for common inspections, for training periods or for working periods. If I look at the year two thousand and something, I think that a significant proportion of the staff of DSIN at that time, if DSIN still exists, a significant proportion of my staff should have spent three years working in another nuclear safety authority. And this

could be a topic for more common thinking between ourselves.

Mr. González: I would take this opportunity to address you, even if I am not a regulator any more, but I hope I will contribute to your discussions. I am very pleased with the last proposal of **Monsieur Lacoste** because I think that we always need discussion on a more or less academic level but in the end, you have to come to real facts. During the almost thirteen years I have been working in international regulatory activities, we have discussed these matters very often and have organized many working groups to try to analyze what our activities are, why do we have differences? What are our achievements? If we look at the resolution of 1975 in the European Union documents, the third step to reach some level of proposals that will be common to all the European countries in safety regulations are already mentioned. And from 1975 until 1995 we have not achieved anything. And, has this happened? I think we have to understand that the origin of standards, of requirements, is national, has a national objective. It has a market origin. It has an origin of applying knowledge in the national basis and using it for national industry. And today we are confronted with another type of market, an international market, internal to the European Union and even more at the international level. But at this moment,

maybe for us, the European Union level is more important. Professor Alonso has talked about experiences in Spain and it is funny in some way to see that we have been able to harmonize with whatever was needed. If we had to use a technology because we did not have an industry of our own, a scientific knowledge of our own, a standard system of our own, we harmonized ourselves. We had problems, for example, in solving the Article 37 report for Trillo and Vandellós because our model for evaluation of the doses outside the plant was more the American model than the European model. So when we tried to explain our model in the Committee, they were not very pleased about how we were doing things. We had to change our models to adjust to the European mechanism. We did not need to change many things in the plants, but we had to change the mechanisms of showing what were the results of our analysis. So, I think we have to realize that to tackle this problem, in the end we have to tackle real problems. And, maybe there are several things that are needed for the future. First of all, the standards and legal structure we have in every one of our countries is also a model of the power of our Administrations, of the regulatory organization of our Administrations. So, what we may have to say is that we freeze this type of power. We are not going to change the structure of power. This power is national power. We

don't think that it will be European power. It is national power. But whilst we understand that our industry and our activities need harmonization, we have to go further in the technical part of standards, of requirements, to harmonize technical activities through a technical analysis of situations. It has been said today that it is important maybe to harmonize objectives, but mechanisms, differences showing how you comply with these objectives, have to be accepted. They have to be accepted not only as national responsibility but as industrial responsibility. It will be the responsibility of industry to show that they comply with objectives. It is not necessarily the responsibility of the regulatory organization to say how it has to be complied with. It is the responsibility of industry to show that it complies with objectives. So, I think in this endeavour of developing harmonization, we also have to enter into technical aspects with industry and such. And I think that it is very important for European activities in nuclear matters from an industrial point of view, not only to discuss this among regulatory organizations, but also to become involved with industrial organizations. And this is the strength of the EPR, the strength of such endeavours.

Mr. Högberg: I would like to comment on a few issues that were brought up in the latter part of the discussion. First, I strongly

162 agree with Mr. Lacoste on the need to exchange people. We have tried it with the United States recently and with NII I think, and our experience is very good. It's costly for a small agency, but I think it's cost-effective nevertheless. But, this is in order to achieve better understanding of how things work in different countries. I have a feeling it will take a very long time before we have harmonization of regulatory activities in member countries. And this is of course also a concern, it's not only a harmonization of technical requirements. Of course we get questions from the media. "Why do you not bring utilities to Court when NII does it twice a year or something like that?. Are you too lenient?" I mean we have a different legal system. We have to explain it. But, I think redundancy and diversity and inspection activities, let's say, monitoring the quality of the safety work of the utility is a good thing because, if we have a good system to exchange experience, then we may pick up different things and then we can cooperate on how best to learn the lessons from that. I think there are many good examples not particularly limited to the European Union that we have on steam generator experience and things like that, to make it not really understandable. But experience shows that it takes about a year or more to get full understanding on why an approach is chosen in one country and another in another. In addition to an exchange of inspectors, I

would like to return to the previous discussion, more cooperation on technical support organizations to work jointly on projects to make us really understand why we accept certain solutions and why we do not accept certain solutions. Finally, I want to support what Mr. Vuorinen and Mr. Lacoste also brought up about better cooperation in information in an emergency situation, and also on incidents that are not really emergencies. Incident information is one thing and information incidents is another thing and we need both! And, on the Nordic scale, I think we have some pretty good information on having a good network which is also redundant in the way that we communicate both on the technical level and between our Heads of Information on that level to pick up media response, realizing that media response is very quick these days. The design requirements for such a system was demonstrated, from practical experience, a few months ago. You know that we have a special satellite telex system for emergency purposes with the plants in the Kola peninsula, SOSNOVIBOR and Ignalina. And tests are made now and then, but about two months ago there came a real message. Someone had pushed the wrong button in SOSNOVIBOR and the real information had to go out. STUK in Finland was very helpful. They have the responsibility for contact with SOSNOVIBOR and we have it with Ignalina to pick up real

information and get it around to all information people also in a very short time, because there were already rumours starting on the Reuter network that there was an accident at SOSNOVIBOR. And, less than one hour turn-around time to kill an unfounded rumour is a sort of design basis requirement because the media are faster than that!.

Mr. Samain: I am quite sure that harmonization is very desirable, but I am also convinced that harmonization is not an objective per se. Harmonization should be considered maybe as a continuous process towards a general understanding of how we manage issues related to relevant topics: nuclear safety, radiological protection, emergency preparedness and so on. This clearly does not signify that everything is the same in each country but that it's possible to put a clear link between the different ways to work. And I will give two small examples. A country as small as Belgium is maybe more prepared to cooperate with neighbouring countries. We have good cooperation with our Netherland neighbours on emergency preparedness and we held an exercise on both sides of the border in Borselle and Doel. We begin to understand how our Dutch colleagues work and I hope that our Dutch colleagues begin to understand what we do! And we have a different approach. It's not the same approach in the view of the

general public and we try to add a lesson from the Dutch approach. On the other side of my country, we have also good cooperation with France and we first started on what may appear as a conflictive situation. A French authority decided to put a new nuclear power station three or four kilometres from the Belgian border at the very beginning of the eighties. And we held a lot of discussions and compared the technical approach and safety. And it gave us the possibility to have a more comprehensive understanding of what we have to do in the event, for instance, of emergency and we have a rather different way of organizing emergency preparedness in France than in Belgium. But we can put the necessary link between the French emergency centre and the Belgian one. It is what we need. We don't need to have the same organization in Belgium and France, but we need to set up a good link between the two organizations. And I am convinced that we have to develop harmonization more in this direction than in the direction of uniformity, of unifications as for many of us. Maybe this is a good direction to consider harmonization. And maybe we have to push the European Commission into this type of approach to harmonization. Once the European Commission strongly pushed to harmonization and we know that we have some reluctance to do it. More than that, I'm sure!

Mr. Marqués de Carvalho: I would like to underline and stress the proposal by **Mr. Lacoste** of exchanging people but I have to apologise because I forgot to mention this matter. This was the way we trained our people, as you may guess. When we had a larger group of people, our people were trained by spending between one and sometimes two years abroad like in IPSN in France and then the Consejo here, a body born from the former Spanish organization, the Junta, and I myself was on both sites. Some of our people spent some time in Spanish nuclear power plants working with the people there. And it proved to be very very good at least for one thing. When there were conflicts of opinion or doubts in citizens or politicians about how we evaluate the requirements imposed, implemented by other authorities, like for instance the Spanish authorities, we could not only tell them that we knew, we could tell them that we worked inside, we knew things from putting hands on and we knew the people and the quality of the people involved. And I remember once, that was the last argument to avoid a clash between the two governments. They asked us a number of questions and my final answer was "We knew these from inside, we know how they work. Either you believe in us or not. If you don't believe go and try to find the Prime Minister of Spain, but if you believe in us you stop there". And they stopped.

Mr. Versteeg: As also a small country, we have quite a bit of interest in having harmonization as far as possible unless there are reasons not to. For instance, one of the obvious reasons was already mentioned, whether harmonization would impede or slow down the technological development, and it is a very obvious one. There is no need to make any harmonization if we were against it. But we have found that, like in Spain, being a customer country and having different suppliers, it is good to at least think about what your own rules are and in that respect having some general rules for harmonized objectives are a good way to work. If you go on a very ad hoc level and develop your own rules, apart from the rest of the world, you run into difficulties like for instance we had some, I would call, minor incidents where we developed some rules on planning zones in emergency planning. And crazy enough, where the planning zone in Belgium stopped, it started in our country. Well, this is the typical example of where one should have been talking beforehand to understand what you're doing. This was an example where, apparently, at the beginning, we were not on good terms with one another. And we should have been able to understand each other's arguments right from the beginning. Of course things develop. Requirements are usually full of technological developments. Now we are trying to develop the scope of standards and objectives

for future reactors so that we sort of follow at the same pace as requirements and I think that's a good development. We do not wait till things have technologically developed already and then follow on with requirements but do it in parallel. I think that is a good way to proceed.

Mr. Willby: I'd just like to say that obviously I'm all in favour of harmonization in a certain aspect. I'm certainly all in favour of a harmonization, everyone getting together to agree on the initial requirements. I'm also all in favour of harmonization of standards. Initially, of course, one's thoughts first turn towards new reactors. But of course, for many operating older reactors, those who are actually decommissioning reactors and who are heavily involved into waste management and I'm thinking of waste repositories. I think that it goes considerably further than just new reactors. But, having said that, I don't wish to be critical. We have to start somewhere and I'm extremely pleased with the work which is on-going in Europe at the moment trying to come up with, as I've said, a harmonization of requirements and standards for new designs. Where I start to have more difficulty is when we move on to subjects which are rather more closely involved with the operation of the reactors within the country, fitting those reactors into the culture within the country and into the other

various systems of local government. I'm particularly thinking of things like interaction with the media, emergency arrangements, incident reporting and there I start to have a little more difficulty on harmonization. I certainly would have some difficulty in seeing a role for a rather more prescriptive Directive from the EEC. Within the Basic Safety Standards Directive, there will be a more open commitment to a requirement for emergency planning for radiological emergencies. But, quite honestly, the Directive should only set the scene talking about reasonably foreseeable accidents, notifying the public and obviously we can then build on that to ensure that we have emergency arrangements which would handle that sort of incident. But I think that how the arrangement is planned within the particular country, how the country gears up, how it arranges to lead that response, I think that we would have to tread very warily in trying to seek standardization. Again, I'm all in favour of talking to each other. Certainly, we have spoken to the countries in Northern Europe which are nearest to us and in some instances, I think most instances, we have negotiated some form of direct communication link with them in the event of an incident in either country that they would get on to us and give us information and we would get on to them and give them information. So that, while it's extremely unlikely the countries

would ever have to take any precautions, we certainly hardly envisage any incident where we would have to take precautions other than possibly food for any incident which took place on a northern coast of Europe, it's certainly essential that the countries in northern Europe would be forewarned of any incident we had, and that we'd had arrangements in place to keep people updated. I'm quite happy that we do have those in place and of course, I think that most other countries are then updated, either via the IAEA, the WANO or the other direct links. But I think we're moving into an area which, while again I encourage countries to talk to each other, I'd be very wary of doing anything which encouraged the standardization-through-Directive route. That can lead to quite prescriptive requirements which certainly we in the United Kingdom sometimes have difficulty with, I have to say.

