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ORGANISMO INTERNACIONAL DE ENERGÍA ATÓMICA

International Conference on the Safety of Transport of Radioactive Material

Summary and Findings of the Conference President

7 – 11 July 2003
Vienna, Austria

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Summary and Findings of the Conference

0.1. Introduction

The International Conference on the Safety of Transport of Radioactive Material took place in Vienna, Austria, from 7 to 11 July 2003. There were 534 nominated participants from 82 States, nine intergovernmental organizations (IGOs) and five non-governmental organizations (NGOs), and there were 132 contributed and invited papers. The Conference was organized by the International Atomic Energy Agency (IAEA); co-sponsored by the International Civil Aviation Organization (ICAO), the International Maritime Organization (IMO) and the Universal Postal Union (UPU); and convened in co-operation with the International Air Transport Association (IATA) and the International Organization for Standardization (ISO).

The objective of the Conference was to foster the exchange of information on issues related to the safety of transport of radioactive material by providing an opportunity for representatives of IAEA Member States and international organizations to discuss critical issues relating to the safety of transport of radioactive material by all transport modes and to formulate findings, as appropriate, based on the papers contributed and the discussions held.

0.2. Summary of Background Session

Radioactive material has been transported for decades within and between countries as the use of radioactive material to benefit mankind has expanded. Many types of material for many different applications are transported by all the major modes of transport.

Among the organizations in the United Nations system, the IAEA has the statutory function to establish or adopt standards of safety for the protection of health from the effects of ionizing radiation. This includes standards of safety for the transport of radioactive material. Since the first edition was published in 1961, the IAEA's Regulations for the Safe Transport of Radioactive Material (IAEA Transport Regulations) have served as the basis for safety in the transport of radioactive material worldwide. Provisions compatible with (often identical to) the IAEA Transport Regulations have been incorporated into domestic requirements by most of the IAEA Member States. In addition, the IAEA Transport Regulations serve as the basis for the United Nations' 'model regulations' on the Transport of Dangerous Goods. These in turn serve as the basis for the international modal regulatory documents issued by ICAO for transport by air, the IMO for transport by sea, the United Nations Economic Commission for Europe for transport by road, rail and inland waterway in Europe, and the UPU for transport by post. The Member States of these 'modal organizations' are therefore generally bound to regulate in accordance with the requirements of the IAEA Transport Regulations. IATA publishes its *Dangerous Goods Regulations*, providing airlines with an easy-to-use manual based upon the ICAO Technical Instructions; and the ISO publishes standards for use by industry and regulators in supporting effective and consistent application of safe transport practices.

The application of the regulatory requirements in a safety-conscious work environment by the 'transport industry' — consignors, carriers, and consignees — has resulted in an outstanding safety record for the transport of radioactive material. In fact, over several decades of transport, there has never been an in-transit accident with serious human health, economic, or environmental consequences attributable to the radioactive nature of the goods. Despite this safety record, it is incumbent upon regulators and industry to continue to be vigilant about transport safety and to continually reassess practices in the light of changes in technology and advances in assessment techniques.

The terrorist attacks of 11 September 2001 have led to increased attention being paid to the security of all nuclear activities, including transport, but international concern about the security of radioactive material in transport is not new. Prior to 11 September 2001, a robust international strategy of protection existed for the transport of certain types of radioactive material. As for all industrial activities, however, there is a need to reassess the adequacy of previous approaches in the light of changing threat levels. Although the high level of interest in security matters was recognized, it was noted that many of the security issues are broader than transport safety issues and are in a state of evolution.

0.3. Summary of Explanatory Topical Session on Liability

There remains considerable uncertainty and debate related to the implementation of a comprehensive regime to deal with the legal liability resulting from an accident during the transport of radioactive material. There are a number of liability-related conventions, to which many States are parties but many others are not. More than half of the world's operating nuclear power reactors are located in States that are not parties to any nuclear liability convention. That lack of broad adherence to a global liability regime creates uncertainty as to the legal consequences of a transport accident. There was agreement that the current situation regarding liability for an accident with radiological consequences during transport is not satisfactory to either shipping States or coastal States, and that a widely adhered to comprehensive modern nuclear liability regime is desirable. In that regard, adherence by major nuclear power generating states would encourage other states to join the regime.

Participants noted that in order to provide the basis for such a comprehensive nuclear liability regime, the international community negotiated, under the auspices of the IAEA, revisions to the Vienna Convention and a new Convention on Supplementary Compensation for Nuclear Damage (CSC). The revisions to the Vienna Convention and the CSC specifically included provisions to attract broader adherence by coastal states. The revisions to the Vienna Convention and the CSC were adopted at a diplomatic conference in 1997 and are now open for ratification by all States; however, neither has yet entered into force. The 2002 General Conference stressed the importance of wide adherence to the international nuclear liability regime. Separately, there has recently been agreement on a similar modernization of the Paris Convention.

The provisions of the liability conventions, and the relationships between them, are not simple to understand. In that regard, the President concluded that the preparation of an explanatory text for these instruments would assist in developing a common understanding of what are complex legal issues, and thereby promote adherence to these instruments. The Agency Secretariat should prepare such an explanatory text, with the assistance of an independent group of legal

experts appointed by the Director-General. Extra-budgetary contributions towards funding for that group would be welcome.

0.4. Summary of Round Table Session on Communication with the Public and Between Governments

Although radioactive material are in common use, their transport receives much more attention than that of other dangerous goods. Increased public and media interest has prompted new initiatives or reconsideration of existing communications policies. The Conference noted examples of successful communications policies in some States.

The communication objectives and messages for a regulator may necessarily be quite different from those for industry. A general principle of good regulation, which applies equally to transport, is transparency (or openness) — at least to the extent permitted by security considerations — such that safety decisions can be accessed and understood by both the regulated industry and the public when necessary. The Conference welcomed the proposal to extend the INES nuclear incident reporting scale to transport incidents, in the interests of transparency and communication with the public.

Because of the international nature of the transport of radioactive material, effective and efficient communication between governments is essential. Important topics of communication include the current status of introduction of IAEA requirements into domestic requirements, safety information on transports, and incidents or accidents. In that regard, the TranSAS missions to a number of States had enhanced transparency and confidence regarding those States' regulations and practices in the transport of radioactive material.

The Conference discussed freedom of the sea and the right of free passage of ships; although some believed that ships bearing radioactive material merited special status, most participants recognized that ships bearing radioactive material could be treated in a similar manner to ships bearing other dangerous goods. The Conference noted that while the Agency has specific competence in respect of the transport of radioactive material, rights of passage for ships and ship operations fall outside its competence.

In relation to the general issue of communication between States on safety issues related to transport, the President concluded that there was scope for additional efforts to communicate the complex technical issues involved. He considered that it would be useful if the Agency were to hold a seminar to discuss the latest information on these issues and extend invitations to relevant experts and to concerned States.

There was agreement that the provision by shipping States of appropriate and timely information to en route States was desirable, as long as the provision of such information did not jeopardize security and recognized rights of free navigation. Extensive discussions were held during the Conference on ways of enhancing the present practice of some States of providing information on a voluntary basis. Considering the contents of Operative Paragraph 12 of Part B of GC(46)/RES/9, the President recommended that informal discussions should continue among concerned States on this subject after this Conference with Agency involvement.

FINDINGS FROM THE TECHNICAL SESSIONS AND PANEL DISCUSSIONS

1. Findings of Related Programmatic Sessions (Technical Sessions 1, 2 and 7)

Radiation Protection Programmes

1.1. *The Conference found that, in general, the individual and collective doses both to workers and to members of the public from the transport of radioactive material are very low, but there are some exceptions.* A number of papers reported doses to workers involved in the transport of particular types of radioactive material by road to be up to 10 mSv or more in a year. Such material is in small packages and is for medical or industrial use. The explicit introduction of radiation protection programmes, which are fundamental to the radiation protection of workers, was in general seen as a very positive element in the optimization of protection of transport workers.

In some cases where the doses are small due to limited handling of the package, especially in the nuclear fuel cycle, questions were raised about the value of routine individual monitoring. In such cases, the need for individual monitoring should take account of the possibility of unforeseen doses (from sources other than the packages being handled, or from accidents). However, the International Basic Safety Standards only require an assessment of doses to workers working in supervised areas, which can be assessed on the basis of the results of workplace or individual monitoring.

The Conference encouraged broader application of the requirement for radiation protection programmes to be established based on prior risk assessment, and the appropriate collection, analysis and dissemination of radiation exposure data. Such radiation protection programmes, which should lead to improvement of the protection of the public and workers, involve the provision of appropriate information and training to all concerned and the establishment of arrangements for emergency preparedness and response.

Compliance Assurance and Quality Assurance Programmes

1.2. The public and other involved parties are, quite rightly, concerned to know that the stringent applicable regulations – the IAEA's and others – are being effectively and consistently applied. *The Conference found that robust compliance assurance and quality assurance programmes are essential foundation stones in building trust and confidence in the safety and effective regulation of the transport of radioactive material.* The IAEA Transport Regulations recognize that safe international commerce in radioactive material depends on a high level of trust between nations, especially regarding the adequacy of packaging, event response, and compliance with import/export laws. The IAEA publications Safety Series Nos 112 and 113 are valuable to the radioactive material transport industry and to the relevant authorities. Their review, updating and publication should be completed as soon as possible. The request for a guidance document for competent authority assessors should be considered by the IAEA Secretariat, and suitable material developed if the need is confirmed.

The IAEA Transport Safety Appraisal Service (TranSAS) is an important tool for assessing and assuring compliance at the State level. It can provide Member States, upon request, with an appraisal of their activities in comparison to the IAEA Transport Regulations and related safety standards, thus evaluating their compliance assurance programmes. The TranSAS process could benefit from review, taking into account the example of the ICAO Universal Safety Oversight Audit Programme and the experience of the TranSAS missions carried out thus far. The IAEA Secretariat could also consider ways of improving the TranSAS process, so as to be able to carry out more missions.

In the area of quality assurance, the Conference recognized the essential contribution of quality assurance (QA) programmes to the continuing safe and controlled transport of radioactive material.

Emergency Preparedness and Response

1.3. *The Conference found that IAEA guidance provides a framework for a comprehensive strategy for anticipating and dealing with transport accidents involving radioactive materials.*

The IAEA transport regulations recognise the need for relevant national and international organisations to establish and implement emergency provisions to prepare for transport accidents involving real or envisaged radioactive release. The IAEA guidance recognises differences between the potential consequences of road, rail, ship and air transport accidents and recommends a 'command and control' mode to ensure that coordination, direction and communication strategies are properly employed.

National infrastructures for emergency response must anticipate a range of accident scenarios and ensure that human resources, equipment, medical response, remediation, waste storage are made available and capacity maintained. Training of emergency response personnel is seen as a critical component of the programme and this must be maintained, especially through the means of frequent practical courses and simulations.

A further key element of emergency response planning is to recognise the importance of confidence building, especially within Government, with the public, media and all other potentially affected parties. Progressive movement in terms of the sophistication of emergency response capability was discussed; with recognition being given to a need to develop more integrated international emergency response plans, including integration of national resources information sharing, and mutual capability building.

1.4 *The Conference found that additional dialogue is warranted to improve overall international emergency response capability, especially with respect to potential maritime incidents; coordinated management between agencies and governments, accident notification, communication, environmental monitoring and salvage/remediation issues were especially considered.*

The Conference observed that multiple applicable documents and conventions exist that do not necessarily clarify the roles of States with respect to leadership in the management of an incident in international waters. It was further noted that affected parties may include consignor, carrier, shipping State, State of Vessel Registry and the nearest State(s) to the location of the incident.

The possible involvement of multiple entities was considered to be a source of possible confusion and a hindrance to an effective response initiative.

It was noted that response capability varies considerably across States. If States are to develop an improved local emergency response capability it may be that access to external assistance will be required. It was further noted that while some State or organisations felt that they could support global emergency response initiative; this was not accepted by others. It was concluded by all that further discussion was required between States in order to develop an international response capability and that this should become part of an integrated global emergency response capability.

It was also noted that issues of prior notification and informal information sharing for planning purposes was useful in managing emergency response plans, especially with respect to communication. Finally, the Conference concluded that the IAEA had a vital role to play in facilitating the development of model plans for international emergency response and to facilitate the development of regional plans that satisfied the concerns and needs of States within regions.

2. Findings of Packaging Sessions (Technical Sessions 3 and 4, Panel 1)

Broadly effective packaging regulations

2.1. *The Conference found that the current IAEA Transport Regulations provide safe packaging options for the entire spectrum of radioactive material: nuclear fuel cycle material; medical and industrial sources; naturally occurring radioactive material; and non-specification material (particularly 'orphan' sources). Packages for both fuel cycle and non-fuel-cycle material have been safely operated for many years throughout the world*. The basic approach in the IAEA Transport Regulations is that the package is the primary means of providing the necessary safety during incident-free transport and during accidents. All packages are designed and built to comply with the requirements set out in the Regulations.

The Regulations apply a graded approach to packaging, with design criteria and approval requirements commensurate with the hazards represented by the radioactive contents. Several contributed papers discussed the high degree of safety and the positive experience in maritime, surface and air transport in general, and the survivability and crashworthiness of Type B packages in particular. The Conference welcomed the fact that the Regulations give industry, with a regulator's approval, flexibility to use a range of methods for demonstrating compliance with design requirements. For all Type B package transport, including irradiated fuel transport, the regulatory standards have been shown to encompass the possible structural or thermal forces generated in well over 99% of real-world accident situations.

Recognize increasing nature of modern global marketplace for radioactive material

2.2. *The Conference called for the development of new strategies for facilitating transport operations, without compromising safety, in an environment of increasing international commerce*.

The IAEA had the foresight to envisage an approach to facilitating international transport by adopting the concept of 'unilateral approval'. In practice, however, the unilateral approval

approach has not been universally accepted and may not be accomplishing its original objective or producing the optimum balance between national authorities' and shippers' needs. In particular, under the current transitional arrangements for packages designed to different editions of the Regulations, many packages are of types that must be revalidated by each State and are not covered by the unilateral approval concept.

It was noted that the nuclear industry and other industries using radioactive material are facing a reduced availability of transport modes and carriers as a result of decisions by commercial carriers, ports and handling facilities not to accept radioactive material. The Conference suggested that the IAEA should work more closely with the modal organizations and with NGOs in determining why shipments of radioactive material are being denied, and develop a strategy for addressing this issue. Greater efforts to explain the use of the IAEA Transport Regulations to a wide public and industry audience, including the staff of carriers, ports and handling facilities, may contribute to a better understanding of the safety level the Regulations provide.

The possibility of further harmonization of the international and modal application of the regulations should be explored through the IAEA, with a view to simplifying multiple licensing processes.

Assessment of regulatory criteria

2.3. A number of contributed papers discussed the high degree of safety of maritime transport in general and of Type B packages in the maritime environment in particular. In addition, transport through the Panama Canal was reviewed. *The Conference found that, relative to maritime transport, the test requirements for Type B packages (thermal test and 9-metre drop test) are based on proven science and engineering.* The integrity of packages transporting irradiated nuclear fuel, plutonium or high-level waste was highlighted, as was the survivability and stability of purpose built vessels in severe ship-to-ship collision.

The Transport Safety Appraisal Service (TranSAS) mission to Panama held in June 2003 was discussed. It was noted that the pre-mission questionnaire was an important tool in assisting the host State when considering the purpose of certain existing regulatory activities. *The Conference suggested that Member States speak to those who have hosted TranSAS missions regarding the benefits of such missions.*

Develop tools to consistently treat non-routine transport (discovered sources)

2.4. *The Conference found that guidance would be beneficial for ensuring safe transport and consistent application of the IAEA Transport Regulations for 'orphaned' or lost and discovered sources.* The number of discovered sources (e.g. 'orphan' sources, including sources detected in scrap metal) has significantly increased in recent years. The need for the prompt removal of such sources from the public domain can outweigh regulatory considerations related to their transport. For example, there may not be available packages, or even package designs, for some orphan sources; or a lost source may be detected in scrap metal at a mill or border and rejected by the consignee, necessitating a new transport. The States in which discoveries occur may not have the programmes, regulatory infrastructure or resources to accomplish the needed transport. The Conference recognized that the discoveries to date have often been resolved successfully through

ad-hoc procedures; however, it noted the potential benefit of standard, written principles. The Conference stressed that the transport aspects of orphan and discovered sources are a small part of the broader source control issue.

Reconsider applicability of transport regulations to naturally occurring radioactive material

2.5. *The Conference identified a need for additional research to relieve unnecessary regulatory burdens related to the transport of very low activity naturally occurring radioactive material.* Since the 1996 edition of the IAEA Transport Regulations introduced radionuclide-specific exemption levels in lieu of the single 70 Bq/g value, ores, tailings, and backfill from large mining operations (e.g. phosphate, coal, gold and monazite) have been brought within the scope of the Regulations. To address this situation, the 1996 Regulations included an allowance for a factor of 10 higher than the exemption quantities for naturally occurring materials, provided they are not intended to be processed to extract the naturally occurring radionuclides. The Conference noted the potential inconsistency between this provision and the developing international guidance on the more general issue of the scope of regulatory control (DS161), the problems associated with determining the ultimate use of the material, and the inconsistency of excepting doses associated with some types of source (e.g. naturally occurring radioactive material - NORM) but not doses of the same magnitude from other types of source. The Conference suggested that the full impact of and technical basis for the 'factor of 10' exemption be thoroughly researched.

3. Findings of Regulatory Issues Sessions (Technical Sessions 5 and 6, Panel 2)

Providing a sound regulatory process

3.1. *The Conference found that the IAEA Transport Regulations provide an excellent basis for the establishment of an effective regulatory process. Nevertheless, there are States in which such a process needs to be put into practice*. This may require the empowerment of regulatory bodies. For international shipments, differences in interpretation by the relevant competent authorities may result in delays and higher costs for international shipments.

The Conference found that industry can play a positive role in the improvement of the regulatory process and that transparency is a way to credibility and confidence building with benefits for all parties involved. The radioactive material transport industry is fully committed to meeting its obligations in this area. It is working to ensure that it meets all regulatory requirements and is seeking opportunities to increase dialogue with intergovernmental organizations and national competent authorities, in order to reduce differences in the interpretation and implementation of the Regulations.

The development of guides, as recommended in the IAEA Safety Requirements on legal and governmental infrastructure for safety (Safety Standards Series No. GS-R-1), is one of the key roles to be played by regulators in order to provide designers, manufacturers, testers, consignors and carriers with adequate and timely tools to comply with regulations. A standardized format and review process, including performance criteria for packaging, was presented and a Standard Review Plan developed on this basis was outlined. Consistent formats and acceptance criteria would lead to better utilization of resources and improve overall package systems.

Double hulls, reliable power systems, radiation shielding, cargo cooling and fire detection/fire fighting are all vital to assuring safety during transport of irradiated nuclear fuel (INF) cargoes by sea. In the event of an accident, an emergency response plan and notification of the nearest coastal State are crucial for avoiding or mitigating consequences.

Key factors to evaluating the adequacy of the regulatory regime

3.2. *The Conference found that, by following the requirements of the IAEA Transport Regulations, the designer of a package for the transport of radioactive material strives not only to meet the requirements of the regulatory tests, but also to produce a package that is safe under all conceivable conditions.* This is confirmed by a number of transport risk studies that have demonstrated the current Regulations are sufficient to provide adequate protection of public health and safety during the transport of radioactive material. Examples discussed at the Conference which support this view included: reports on severe accidents that have shown that the accident environments were bounded by the test conditions in the Transport Regulations; tests on uranium hexaflouride packages which have demonstrated that they meet the new IAEA regulatory requirements; and evaluations showing that implementation of administrative procedures, training and control measures based on the Transport Regulations have resulted in minimal contamination levels connected with the transport of spent fuel.

With regard to new regulatory requirements, it was reported that a methodology for validation and verification of the safety of Type C packages for air transport of fresh nuclear fuel has been developed. Furthermore, the experience in the implementation of the new modal regulations has been positive. However, through this process it has been learned that sufficient time will be needed in future to ensure common implementation of new requirements and, in the case of industry, to provide for necessary changes, including staff training, re-design and/or re-approval of packages, and updates to operating procedures. It was indicated that additional training might be needed to ensure the desired high level of compliance, specifically for those involved in the transport of radioactive material by air.

The test protocols of the US Nuclear Regulatory Commission package performance study, which have been developed through a public participation process, foresee fire and drop tests of large irradiated nuclear fuel flasks for road and rail transport to levels well in excess of the environments provided by the Transport Regulation tests. It was noted that the full scale testing of these flasks in such extreme conditions will be carried out mainly for the purpose of improving public confidence. It was noted that, for demonstrating compliance with regulatory requirements, designers of packages and regulators usually find that alternative methods, including model testing and/or analyses, are adequate.

The Conference found that there may be a need to pursue with a higher priority the already approved Co-ordinated Research Project on severe accident studies of radioactive material transport packages. Completing this effort would ensure the compilation and documentation of the severe accident testing data that have been obtained over the years, any new relevant data that may become available, and the results of current risk studies – all with a view to further confidence building with regard to the level of safety provided by the Transport Regulations.

Areas for improving the transport regulatory regime

3.3. *The Conference found that the current regulations provide a high level of safety and are implementable by Member States and industry.* However, the developers of the Regulations should consider the need for additional flexibility in the light of the broad range of materials to which they apply. Some participants recognized that a 'one size fits all' approach to regulation can be unnecessarily burdensome when applied to particular applications.

Specific approaches were discussed for improving dialogue on the regulatory review process at the international level, with a view to ensuring that the process remains robust and consistent. Several papers also stressed the need for greater attention to consistent and timely application of the IAEA Regulations by States. *The Conference found that the regulatory process for transport should be sufficiently flexible to take into account the latest developments, while providing sufficient stability in the Regulations themselves.*

Addressing problems with refusal of shipments

3.4. *The Conference suggested that the IAEA convene a discussion forum between relevant entities (which may include the IMO, ICAO, IATA, IFALPA, World Customs Organization (WCO), shipping companies (with a specific focus on air and maritime carriers, ports and handling facilities), and national regulatory authorities to assist in alleviating problems associated with refusals by carriers, ports and handling facilities to accept consignments of radioactive material.*

The Conference further found that enhanced efforts or separate treatment may be warranted for the transport of radioactive material for medical applications.

The growing problem of refusal by carriers, ports and handling facilities to transport radioactive material received a great deal of attention during the Conference. A number of papers focused on the increasing frequency of use of radioactive material in medical applications, including life-saving applications requiring urgent transport, and the difficulties that are being experienced in accomplishing those transports. The current regulatory system provides adequate safety but does not include special provisions to facilitate the rapid distribution of medical use isotopes when warranted. In addition, it was noted that shipments of radioactive material for industrial purposes, especially those in large quantities regularly requiring transport by sea, are also sometimes being refused. The Conference recognized that there is a growing need for improved and more specific communication between all parties involved, including enhanced dialogue between the consignors and the carriers. However, it was further recognized that such dialogue is also necessary with regulatory authorities and other governmental organizations (e.g. customs and security organizations) at both the national and international levels.

4.0. President's Closing Statement to the Conference

In his opening address, the Director General of the IAEA outlined some of the history of this topic and the background to this Conference. I do not intend to repeat that account, but simply to recall that efforts by the international community to harmonize international practices for the safe transport of radioactive material have a history going back four or five decades. Over that period, the IAEA's Regulations for the Safe Transport of Radioactive Material, in their different editions, have played a central role. In more recent years, the IAEA General Conference has been one of the major forums for the debate on transport safety issues. It is therefore fitting that the IAEA has taken the lead in organizing this Conference.

The level of participation — well over 500 nominated participants from 82 States and 14 organizations — is a clear indication of the level of interest, and the lively discussions during the week have confirmed this. The objective of the Conference was to foster the exchange of information on critical issues relating to the safety of transport of radioactive material and to formulate findings based on the papers contributed and the discussions held, and we have certainly achieved that.

The transport of radioactive material is essential for a very wide range of beneficial uses: the generation of electricity and many industrial, medical and other applications. It will therefore be accepted providing people are confident that it is safe. Historically, the safety record of radioactive material transport is excellent, and all parties involved should continue to co-operate in ensuring that this excellent record is maintained. Nevertheless, many people continue to be concerned. The high level of confidence that is needed for widespread acceptance depends on convincing people that the transport of radioactive material is subject to rigorous safety requirements and that those requirements are always complied with.

There was broad agreement among Conference participants that the IAEA Transport Regulations, and the regulations of the modal organizations based on the IAEA Regulations, provide a sound technical basis for the safe transport of radioactive material. There is room for improvement of the regulations in a number of technical areas, and the detailed issues involved — and discussed during this Conference — should continue to be pursued by the relevant organizations, with due account of the need to balance the benefits of flexibility and continuing improvement against those of regulatory stability. In particular, we want to be sure that the regulations can readily be applied to all the types of radioactive material that might need to be transported, while leaving some flexibility in the handling of some materials, such as urgent medical supplies. This means making sure not only that the regulations are applicable to all these types of material and are as simple to apply as possible, but also that those who have to apply the regulations have sufficient guidance so as to be able to apply them correctly. The detailed findings from the technical sessions indicated some areas in which such guidance might be particularly desirable, and in most cases the IAEA would be an appropriate body to provide it.

There remains the challenge of extending the broad agreement that the regulations provide a good basis for safety beyond the Conference room: to convince all those involved in the transport of radioactive material and also the wider public that the regulations provide effectively for their safety.

The larger issue in relation to the regulations is that of compliance. The regulations are already very widely applied, but the goal must be to reach a situation in which they are applied consistently by all States to all transports of all types of radioactive material, and furthermore are *seen* to be applied consistently to all transports. In this regard, the Conference findings emphasize the importance of rigorous compliance assurance and quality assurance, and noted the value of the IAEA's TranSAS service as a tool for both promoting and demonstrating compliance with the regulations.

Looking beyond the technical findings, there are clearly issues on which real differences of opinion remain, notably those of comprehensive adherence to a global liability regime and certain aspects of communication between governments. These issues can be resolved only through dialogue, and the Conference provided a valuable opportunity for such dialogue. But there are complex legal issues involved, and it is unrealistic to expect to resolve them during a weeklong Conference. Although progress has been made, the dialogue needs to continue, and the IAEA should continue to promote it. I would like to acknowledge the willingness of States with different positions on these issues to work together constructively in defining possible ways forward with a view to enhancing communication and understanding. I hope that this will open avenues to better co-operation by all concerned in addressing these issues.

In my opening address, I said that we would be judged on the basis of whether we had used the opportunity of this major Conference to build on the new consensus embodied in last year's General Conference resolution regarding transport, on new communication initiatives and on the growing interest in TranSAS missions. You have responded very positively to the challenge to undertake a thorough review of the regulatory and technical issues on the agenda, to maximize discussion and to seek dialogue and communication where differences exist.

The summary and findings of the Conference are evidence of achievement and in some cases identify the way ahead on difficult issues. Thank you for your good work this week.