THE SAFETY CASE AND CONFIDENCE BUILDING - Chairperson T. Pather (South Africa)

The notions of “safety case” and “confidence building” are very often used in discussions on the safety of radioactive waste disposal facilities. In the context of geological disposal, because of the long timescales involved, it is not possible to demonstrate safety directly and recourse must be made to other, less direct, evidence. The safety case is a synthesis of evidence, analyses and arguments that quantify and substantiate a claim that the repository will be safe. It includes, in particular, the presentation of evidence that all relevant regulatory safety requirements and criteria can be met.

The keynote presentations described the safety case concept and its use in radioactive waste disposal safety assessment, and identified areas where it has been utilized and where it would be useful to develop further international consensus. The presentations covered the structure and content of the safety case, its use in the licensing process, and its use as a vehicle for communication with interested stakeholders.

It was stressed that the various technical arguments used and the presentation of analyses must take account of the concerns and level of technical knowledge of the intended audience. A safety case will have a variety of different audiences, including the implementer, the regulator, policy makers and other stakeholder groups. This needs to be considered when developing documentation; it may be appropriate to develop a range of documents that differ in their levels of technical content and detail, but are consistent in the underlying basis and in the key messages they present.

In his summary of the eleven contributed papers the rapporteur identified the following key points: 1) identification of key components for the safety case; 2) treatment of regulatory requirements and compliance; 3) staged or phased process for repository development; 4) identification and definition of scenarios; 5) treatment of parameter uncertainty; 6) confidence building; and 7) IAEA support for member states.

Following these presentations a panel discussed a number of issues that were highlighted during the presentations or raised in questions from the audience.

Providing for protection of the public at long timescales, far beyond the lifetimes of current generations, requires the use of predictive models and stylized scenarios to show compliance with radiological criteria. The subject is difficult and the existing international radiological protection guidance is being variously interpreted in different countries. The subject would therefore benefit from further international guidance.

The use of the concepts of safety case and confidence building for facilities other than deep geologic repositories was discussed. It was pointed out that near surface disposal is now widely practised and experience therefore exists of the reliability of safety assessment tools in this context. The possibility of this experience being transferable to geological disposal was discussed.

The technical terms used in this area are, in some cases, not agreed upon or understood by all experts; the examples discussed were ‘disposal’ and ‘safety assessment’. It is even more problematic when the terms are translated into different languages. Furthermore, the terms used within the technical community are not easily understood by the various stakeholders, especially those without technical backgrounds. In this context, more work could be done by the international organizations, firstly, to develop standard agreed terms for the use of experts and, secondly, to develop explanatory material for the use of non-experts.

For building confidence in a proposed facility, it is essential that the regulator and the regulatory process are credible. The regulatory body must be seen to be independent and competent. It must also be adequately funded. It must guard against the potential to become biased in favour of a project, especially when it has been associated with it for many years. Other mechanisms, such as expert peer reviews, may be employed to provide an independent view of proposals but the basic confidence must come from the credibility of the regulatory body.

There are concerns about the possible lack of regulatory experience in countries that are developing new programmes in this area and this was identified as a topic for follow-up by the international organizations.