

# **BRIDGING RADIATION POLICY AND SCIENCE**

**Airlie House, Warrenton , VA**

**1-5 December 1999**

## **FINAL CONFERENCE**

### **CONCLUSIONS AND RECOMMENDATIONS** (*page 1 of 2*)

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A number of conference conclusions and recommendations were suggested. Considering that many recommendations were not fully considered because of lack of time, the participants agreed that another conference should be organized to further develop these and other recommendations. The following list reflects those recommendations and conclusions that received the broadest support.

#### **CONCLUSIONS**

- Ionizing radiation is a well-known human carcinogen. During the past 50 years numerous epidemiological studies of adult human populations exposed to radiation from medical, occupational or military purposes have been conducted. The lowest dose at which a statistically significant radiation risk has been shown is ~ 100 mSv. This does not imply the existence of a threshold.
- The effects of low-level radiation below 1 mSv per year (100 mrem per year) above background radiation cannot currently be distinguished from those of everyday natural health hazards.
- The concept of collective dose is often misapplied, e.g., to estimate health impacts of very low average radiation doses in large populations and/or doses delivered over long time periods. Collective dose can be a useful comparative tool for instance in the evaluation of protection options.
- It is essential to continue to foster international cooperation in radiation safety. In particular, international harmonization of radiation safety policies for radiation sources delivering low radiation doses should be developed.
- Consistent and coherent radiation policy on a national level is necessary for the effective implementation of radiation safety.
- Economic, environmental, ethical, psychological, and scientific factors are all essential in the policy and regulatory decision-making process, to assure public health and well-being. The way in which these factors are incorporated in nation-specific decision-making processes may vary.
- Concern over low doses should not deter the public from obtaining benefits of medical procedures.

### **Policy and Regulatory Process**

- Policy discussions on the regulation of radiation sources delivering low-level radiation should include references to natural background radiation.
- The conference supports the evolving global framework of the IAEA for the safe use of radiation.
- The conference supports further development and evaluation of the ideas associated with the proposal on controllable dose.
- No radiation dose is below regulatory concern but certain levels should be below regulatory action, and appropriate dose levels should be established.

### **Science**

- Fundamental questions about the shape of the dose-response curve and mechanisms of effects of radiation at low doses are unlikely to be answered in the near future. Scientific research, including molecular and cellular radiobiology studies are critical in order to better understand mechanisms of radiogenic effects, and providing important information about the likely shape of the dose-response curve at low doses of radiation, and should be coordinated and continued.
- Multi-national support and analysis of human data derived from studies such as the RERF Life Span Study, the Russian Mayak and Techa River studies, nuclear workers studies, and studies of populations living in high natural background areas to assist in reducing scientific uncertainties in risk and in elucidating mechanisms of radiation health effects are strongly encouraged. These data offer a unique opportunity to further quantify effects at low doses in human populations.

### **Constituent Concerns**

- Groups involved in the development of policy and regulations, or making recommendations for such policies and regulations, should operate in an open and transparent manner, and engage in dialogue with stakeholders.
- There is a pressing need for more effective communication by scientists with the public, politicians, policy makers, regulators and other interested persons. The science should be clearly articulated, emphasizing what we do and do not know, explaining the limitations in the information and what we are doing about it.