

RADIOACTIVITY DURING THE FIRST 5 YEARS AFTER THE CHERNOBYL ACCIDENT AND COMMITTED EFFECTIVE DOSES

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INTRODUCTION

The Chernobyl accident from 26th of April 1986 has had an impact on radioactivity in Romanian territory. Consequently, since second part of 1986, a long-term survey on effects regarding radioactivity of environmental and on health of the population was established in Romania.

METHOD

Data on radioactive contents of water and of food (milk and dairy products, meat, bread, vegetables and fruits) reported by the Radiation Hygiene Laboratories from Arges, Bacau, Brasov, Caras-Severin, Cluj, Constanta, Dolj, Galati, Iasi, Mures, Maramures, Prahova, Sibiu, Suceava, Timis and Bucharest were processed by the Institute of Hygiene, Public Health, Health Services and Management - Bucharest, using an INDEPENDENT computer. Knowing the annual consumption of the population from Romania and applying appropriate dose conversion factors (committed effective dose per unit intake), the individual and collective doses for the period 1987 - 1991 have been calculated.

RESULTS

Since 1987 to 1991, the Sr-90 and Cs-137 radioactive content continuously decreased, down to insignificant levels.

In comparison with 1986, the Sr-90 content was maximum in some vegetables (in 1987, up to 0.98 Bq/kg) and it was minimum in drinking water (0.03 Bq/l).

The Cs-137 content was maximum in some dairy products. It decreased from about 62 Bq/l in 1987 to 5 Bq/kg during the following years (1).

The resulted individual and collective doses due by Sr-90 and Cs-137 content in drinking water and foodstuff are presented in figures 1 and respectively 2.

CONCLUSION

For an adult, the individual dose decreased from 0.331 mSv in 1987 to 0.018 mSv in 1991, mainly due to Cs-137 content. As Cs-137 content decreased, the contribution to the committed dose from Sr-90 increased.

For the whole interval (1987-1991), the resulted collective dose for the population of Romania due by ingestion of drinking water and foodstuff and by their content in Sr-90 and Cs-137 was 11,298 man-Sv, 62,7% being done by the radioactivity level from 1987.

REFERENCE

1. M. Oncescu, C. Milu, The assessment of the additional (post - Chernobyl) irradiation in Romania, in "Artificial Radioactivity in Romania", Romanian Society for Radiological Protection, Bucharest, 192 - 203 (1995)

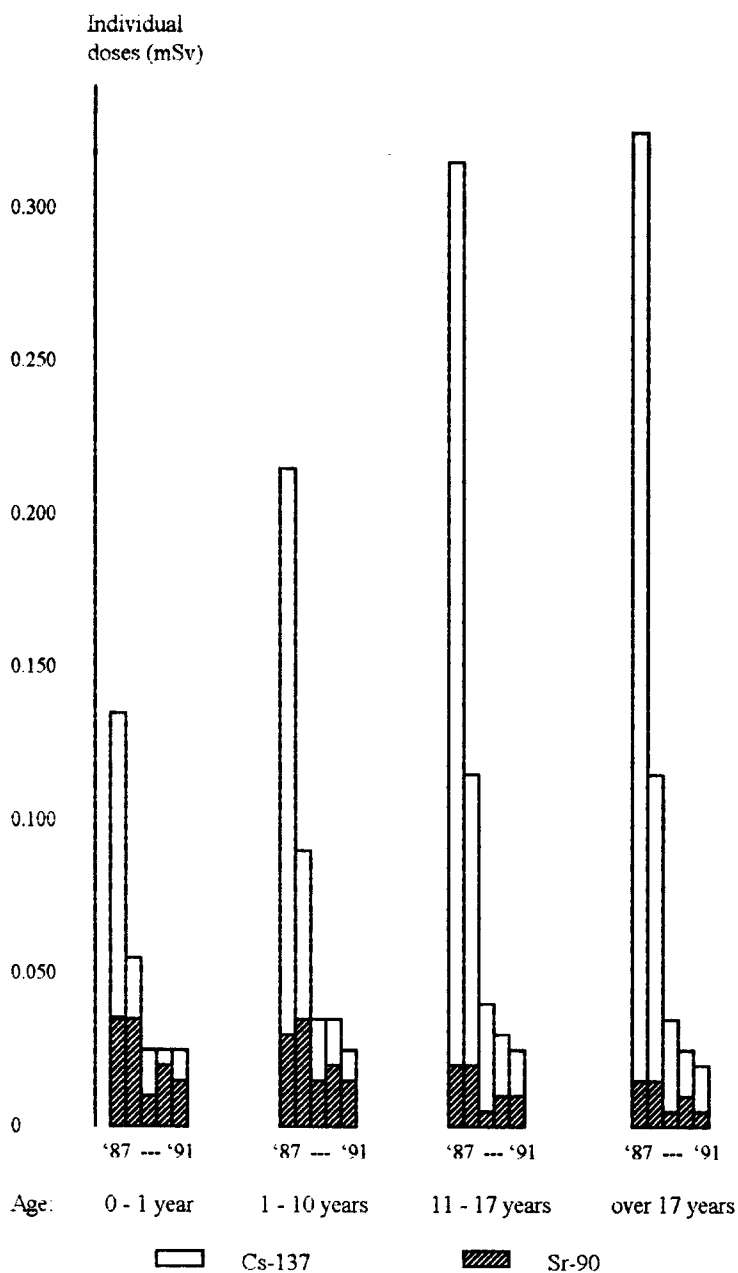


Figure 1. Individual committed effective doses for the Romanian population after Chernobyl.

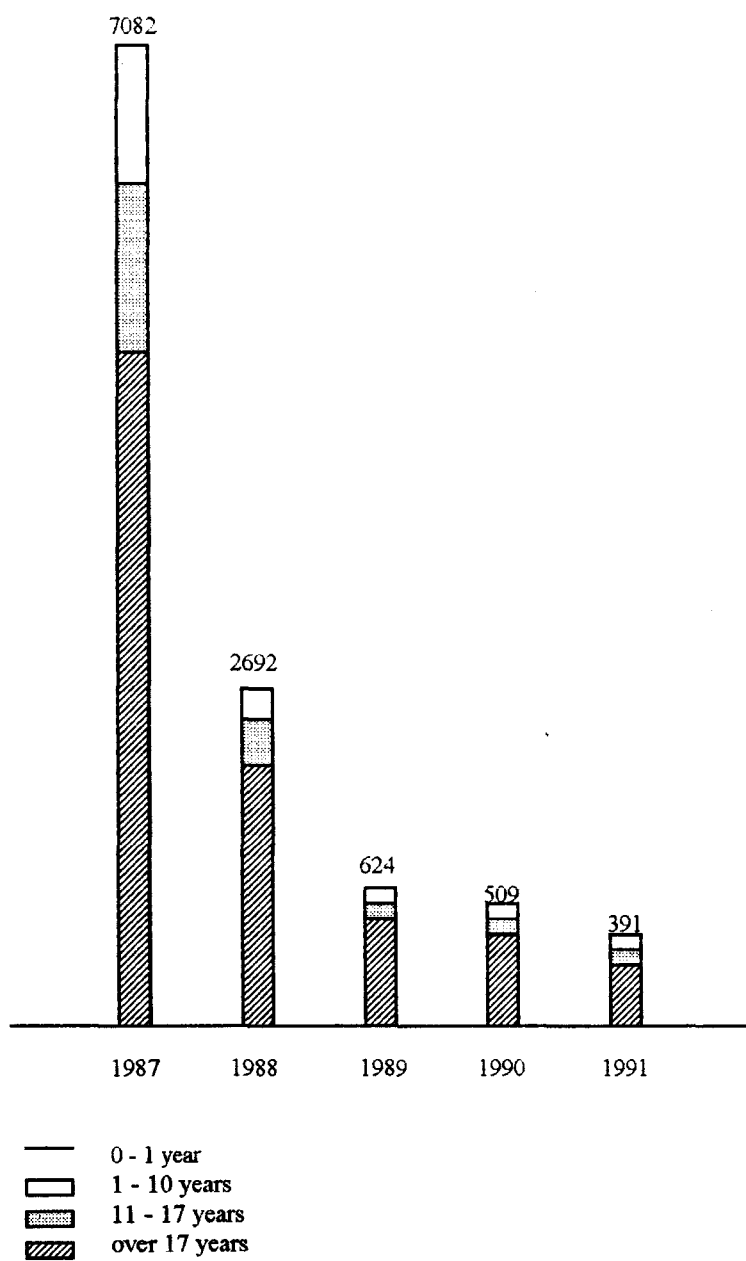


Figure 2. Annual collective committed effective doses after Chernobyl, for the Romanian population (man.Sv)