The theoretical part of the thesis is divided into four chapters dealing with the problems of radon and its influence on the human organism. The first chapter summarizes the basic issues of human environment, interaction and division of the environment based on its function (use for life).

The second chapter focuses on the radioactivity of environment, specifically on ionizing radiation, its formation and division, as well as its effect on human health. The next chapter is about radon, its formation, sources of radon, its distribution in the environment, measurements, protection against radon, the history of problems with radon and the Radon Programme of the Czech Republic.

The last chapter of the theoretical part is dedicated to lung carcinoma, its origin, distribution, diagnosis, treatment and relationship with the incidence of radon based on surveys of selected epidemiological studies.

The practical part of the thesis includes description of source data and methodology of processing data sets of radon equilibrium equivalent concentration (EEC), number of deaths by causes and population status.

Chapter of results includes map outputs of radon EEC, mortality rates of carcinoma lung for men, women, and both sexes. Other parts of the outputs are the results of the correlation analysis of the dependence on the activity of radon on the mortality rate on carcinoma lung for men, women and both.

The conclusion of the thesis is dealing with the discussion of results and the interpretations.

Keywords: radon, radon risk, lung cancer, human environment, health, ionizing radiation.