RADIOLOGICAL PASSPORTS AS A DECISION SUPPORT TECHNIQUE FOR POST-CHERNOBYL DOSE REDUCTION IN CONTAMINATED SETTLEMENTS

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In 2000, IRSN and GRS initiated a support for collecting, securing and validating of existing data in the field of Chernobyl accident consequences and establishing a database including a detailed documentation in order to make available all reliable and objective information for decision makers, for planning of actions, for information of the public and for further scientific work. Three projects as a part of French/German Initiative (FGI) for humanitarian and technical assistance in favour of the Ukraine, Belarus and Russia have been established. The authors represent subproject 3.9.1, which objectives are as follows: (i) develop and replenish the database for the Radiological-Hygienic Passports (RHP) and perform additional investigation of the target settlements in Belarus where comprehensive information has not been acquired yet, (ii) establish conditions and communication infrastructure for database availability, (iii) provide data analysis involving data on individual effective dose monitoring and results of countermeasures applied, and (iii) formulate the wider recommendations for the target settlements located in contaminated areas, concerning radiation, health, sanitary and social protection, countermeasures, industrial infrastructure development and reviving the local economy. During implementation of the project, 96 settlements with total population of 25 thousand were investigated and their RHPs were compiled. Every RHP consisted of 13 separate forms grouped under three principal headings: Statistics (societal and demographic structure of population, housing, land used and predominant soil type); Economical infrastructure and public utilities (farms, industries, schools, hospitals, shops, service, etc.); Radiological data and doses (total area subdivided vs. level of contamination, Cs-137 content in human body, contamination of agricultural products, contamination of households, annual effective dose). Every RHP was concluded with proposals as to the countermeasures recommended and was incorporated in the database developed. It addresses the above settlements and all other critical locations, assists for evaluation of radioecological conditions and ranking of contaminated settlements, files data on these settlements, recommends and evaluates protection measures, and provides decision-makers with a risk-based remedial planning and a feasibility assessment of recommended measures based on a cost-benefit analysis. To support a decision protocol, the database, in addition to informational block, contains also a simulation block comprised by the following models: (A) contaminant transfer to basic forage resources and food; (B) exposure and risk assessment and prediction; and (C) cost and efficiency analysis based on data of available countermeasures. This study is funded by FGI Programme.