

Subject: V.Demin, paper on regulation of the post-accident intervention

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Dear Prof. K.Mori.

I remember with pleasure our meeting in JAIF, 1 December, 2000.

Please find in the attachment our paper (MS WORD, zip-compressed). You asked me to send it to you.

That paper was in Russian and was prepared in 1996.

It took some time to translate it into English, to improve and to make it more modern.

Let me draw your attention to the computer data bank for analysis of risk (BARD). We have developed BARD since 1990 (in parallel with the health risk assessment methodology). Now it is a tremendous methodology and computer tool with the following applications:

1. assessment of the radiological and non-radiological consequences of radiation accidents and nuclear weapons tests,
2. assessment of the radiation risk from any source of radiation exposure (natural, medical and technogenic);
3. health risk assessment and comparison for different energy systems;
4. analysis of the health of a population in terms of risk and health-demographic indices;
5. assessment of health risk from other technogenic sources (if input data are available, e.g. chemical cancer risk).

Main features and advantages of BARD:

I. Great data base with health-demographic data (HDD) of different calendar years:

1. age distribution density,
2. age-cause-specific morbidity rates (in development).
3. age-specific fertility rates,
4. age-cause-specific death rates

for Russia and regions, for CIS and some UN states for comparative assessments (including some data for total population of Japan) with the modern computer data base management;

II. The set of primary health risk assessment models developed up to now:

for analysis of population health,

for radiation risk: BEIR IV ? VI, UNSCEAR 94, etc., for some chemical carcinogens, etc.

Now in the process of implementation are the primary risk assessment models for contaminants from fossil fuel power production systems.

I propose to develop BARD for Japan and may be for surrounding countries (both Koreas ?, Indonesia ?, etc.) together with some Japan research institute. It could be not great work: mainly to translate into English (partly made) and Japan language, to add into the data base the regional Japan HDD and to prepare the help for users).

Best regards,

Happy New Year,

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# ANALYSIS OF THE REGULATION ON PROTECTIVE AND REMEDIAL MEASURES ON THE RADIOACTIVE CONTAMINATED TERRITORIES

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## Abstract

The regulation and decisions on the radiation and social protection and rehabilitation of the radioactive contaminated territories are analyzed with purpose to learn all lessons needed for improvement of the regulation and activity in restoration phase and in the preparedness to possible future radiological accidents. Necessity to go beyond the simple radiation protection approach in the decision making and to use risk analysis considering both radiological and non-radiological factors is one of the lessons. The conceptual aspects of risk analysis together with dose assessment in decision making are considered.

## 1. INTRODUCTION

At the moment of the Chernobyl accident national as well as international regulatory documents on protective measures on the radioactive contaminated territories were neither complete nor perfect in some necessary aspects especially in respect to the countermeasures at the intermediate and long-term phases. They were mainly prepared for the first phase of a post-emergency response (PER).

In 1991, five years after the accident, the main legal regulatory document - the Chernobyl Law was adopted. In contradiction with recommendation of the specialists (Chernobyl Concept [1]) and radiation protection principles introduced by the 1990 Recommendations of the ICRP [2] the very controversial and erroneous items were introduced into the Law [3]. They resulted in the broadening of the territories where radiation and social protection should be implemented and increasing of the population concerned by this protection. The number of the Russian administrative regions which territories in some their parts were recognized as suffered from the accident changed (in comparison with early post-accident decisions) from 3 to 17 and population respectively increased from 100 - 150 thousand to 2.7 million people. The other results of these decisions were the following:

- expenses for PER grew highly with very ineffective use of the most part of them,
- additional compulsory mass relocations were decided,
- optimum levels of protection from a complex of countermeasures were impossible to achieve,
- the area of the social tension, effects of the socio-psychological factor, negative changing of social and economic conditions respectively increased,
- consequences of the accident (due to the erroneous decisions) expanded over the territories which were not radioactively contaminated to significant levels from the accident,
- these decisions and the way of social compensation adopted on the suffered territories (personal annual payment) continue to make the transition to the rehabilitation policy difficult.

So the problems arising in liquidation of the consequences of the Chernobyl accident and other radiation accidents formed the needs in proper regulations on protective and reduction measures on affected territories.