E. SUBSTANTIVE RESEARCH RESULTS IN RUSSIA: SOCIAL, LEGAL AND ORGANIZATIONAL RESPONSE TO DISASTERS

12. NEW LEGISLATION FOR THE CONTROL OF DANGEROUS SUBSTANCES IN RUSSIA

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In the Russian situation we can probably more correctly speak about the attempt to establish legislation for the control of dangerous substances, than about the existence of laws themselves. This is because in fact, the legislation is currently in the process of being created.

Current legal regulations for the handling of dangerous substances, are based mostly on instructions, rules and standards of some governmental departments. The Natural Environment Protection Act (Vedomosti, # 10, 1992) adopted in December of 1991, is intended to be a basic and comprehensive statement on environmental law, but it only contains a few important but general provisions. For example, the legislation says that only if permission has been obtained from some governmental sanitary (health) agency can use of made of new chemical substances that are capable of having direct or indirect effect on human health (Article #51). We can note that this provision does not even talk about harmful effects on the environment. Therefore, the state environmental protection organizations are not involved in the control process. Another general provision in the law forbids the use of toxic chemical compounds that do not decompose or that greatly affects the human organism or the environment.

The Act of the Russian Federation on the Sanitary and Epidemiological Well-being of the Population (Vedomosti, # 20, 1992) is still another decree tnat regulates the handling of dangerous substances. This law allows the introduction and use in production of new technologies, materials, substances and goods designed for employment in commerce and in the home, only if the governmental sanitary groups that deal with their employment, agree that they are consistent with the relevant health rules of relevant agencies. If these organizations decide that the enterprises and citizens responsible for the production of the above mentioned products are not following the relevant rules regarding their safety, their production and selling must stop (Article #12). The Consumer Rights Protection Act also sets forth additional provisions for the control of hazardous substances (Vedomosti, # 15, 1992).

Yet it is obvious that to be effective the general provisions of such legislation must be developed in special acts. This kind of detailed work has only just been very recently initiated in Russia. It was only in 1992 that a draft act regulating dangerous substances handling was developed. Since that time this document was several times corrected and amended but still has not been adopted and enforced into practice

The draft act is based on an approach that provides for the comprehensive regulation of public activities in dealing with risky substances. In practice, this means the following Any hazardous substances that are not regulated by other laws will become the object for regulation by this act. The act will regulate all kinds of materials and

their possible negative effects, be this their explosiveness, flammability, corrosiveness, irritability as well as cancer, teratogenic, mutation and some other risks. This new legislation is intended to provide for the protection of possible objects that might be dangerously affected, namely the health of people, the environment, the economy and other possibilities. Regulation of all of the stages in the handling of perilous substances is attempted by the law.

The general idea of the draft law is to prevent the impacts of dangerous substances on health and the environment. The safe handling of such matter is to be structured by the setting up of legal requirements. These will concern the testing of new and old substances, the development of governmental expertise to assess the results of tests, the registration of substances by the government, and a licensing and other requirements with respect to the importation, production, transportation, storage, uses and disposal of hazardous substances.

Discussion in Russia suggests there may be a possible weak point in the existing legislation. This may be with respect to the testing of dangerous substances. The draft law stipulates a detailed testing procedure. Thus, it is the duty of a person or an enterprise that develops a new substance to elaborate a scheme regarding the technological process involved, and to provide for a step-by-step investigation using tests derived from scientific conceptions. The developer can use any accessible data if the material being developed is similar to substances already existing in foreign countries. In such cases, the developer must describe the methodology of the tests used abroad, and must provide the amount of testing stipulated by the Russian law. As for old substances, i.e., material that would be in circulation at the time of passage of the law, they are subject to testing in the order that would be decided by duly authorized governmental organs in the field of the control of dangerous substances.

These governmental bodies would set the criteria for tests of risky substances and also the volume of the material that should be used in such testing. During the examination of such substances, the developer is obliged to conduct investigations on the:

> a) chemical and physical properties of the substance including its flammability, explosivity, corrosiveness, oxidizing and other reactive properties; and
> b) toxic properties including possible distant effects from different levels of impact on human health and natural objects.

From the results obtained during testing, the developers of a dangerous substance must prepare:

> a) a document or "passport" on the safety of the substance;
> b) a statement of the requirements to be followed in packaging and marking shipments;

c) a draft of the state level standard about the substance,
d) a declaration on the methodology necessary for the discovery of the authentication of the safety norms that should exist in working areas and in the environment, and that is in accordance with environmental and sanitary or health legislation

A "passport" about the safety of a substance would be a document identical to the chemical safety data sheets stipulated by the 1990 Convention concerning safety about the use of chemicals in the work place. The intent is for this passport to be with the substance during its whole life. The purpose of a passport is to give to users of hazardous substances the necessary information about the material and its safe handling.

It is intended that state governmental agencies will determine the requirements for the contents of a "passport. The content should include at least the following information:

a) a registration number;
b) an identification of the dangerous substance and the company involved (including the trade or common names of the substance and details about the supplier or manufacturer);
c) an indication of chemical and physical properties of the material;
d) particulars about the stability and reactivity of the substance;
e) toxicological details (including potential routes of entry into the human body and the possibility of synergism with other chemicals or hazards that might be encountered in a work setting);
f) identification of possible hazards;
g) first-aid measures that could be taken;
h) relevant ecological data;
i) firefighting measures that should be undertaken if necessary;
j) steps or procedures to be taken in cases of accidental releases;
k) exposure control/personal protection measures (including possible methods of monitoring workplace exposure);
l) requirements for transportation and storage;
m)disposal considerations;
n) applicable regulatory rules (including major legal edicts);
o) the spheres for the possible use of the substance.

The requirements for the marking of dangerous substances that are set forth in the Russian draft law correspond to the Seventh Amendment to EC Directive 67/548. That

is, it sets forth the same approximate laws, regulations and administrative provisions relating to the classification, packaging and labeling of dangerous substances. These requirements will be such as to enable persons who have to deal with the substance could probably handle it safely at any stage of transportation, storage, use or disposal.

The Russian draft law on hazardous substances is based on the principle of recognizing the results of tests of similar substances done abroad. Also, considering the modern international principle of good laboratory practice, the Russian law too intends to provide for high quality of testing dangerous substances in Russia. To verify the quality of tests from the viewpoint of adherence to the legal requirements of the Russian government, there will have to be created special state service organizations for verifying the quality of investigations of hazardous materials.

The programs of verification of the quality of such investigations will include:

a) an estimation of the adherence of testing schemes to the established requirements;
b) estimations of the correspondence between the qualification of managers of investigations as well as research and technical personnel, and the established requirements;
c) checking for the presence and use of the required testing equipment which is to correspond to the aims of the tests;
d) checking for the presence of the corresponding state standards for all the required tests;
e) checking for the provision of permanent meteorological control.

If a center or laboratory for investigations of dangerous substances meets the established requirements they are to be given a license for five years to carry out such investigations.

According to the Russian environmental legislation, environmental experts are to play an important role in preventive control. The use of state expertise about the results of tests of hazardous substances, is a compulsory stage before the registration of the substance.

The creator (producer or importer) of the material is to submit to duly authorized governmental agencies in the area of handling dangerous substance for the state, an indication of expertise or specialized know-how in the following matters;

a) materials relating to identification of the substance;
b) proceedings of tests done on the substance;
c) details in a passport about the safety of the substance,
d) materials relating to packing and marking,

e) a draft of the state standard for the substance,
f) information about the level of safety norms regarding the impact on the air of dangerous substances in working areas, and also a methodology according to environmental and sanitary legislation for their discovery;
g) description of the methods used for testing the dangerous material.

Development of governmental expertise or know-how of the results of tests of dangerous substances has been carried out by such organizations as:

· *Minpriroda* (Ministry of Environmental Protection and Natural Resources of the Russian Federation) for the impact of dangerous substances on natural environment;

· *Gossanepidnadzor* (the State Committee on Sanitary and Epidemiological Inspection of the Russian Federation) for the impact of dangerous material on human health;

· *MIA* (the Ministry of Interior of the Russian Federation) for flammable and explosive substances;

· *MOH* (Ministry of Health Care of the Russian Federation) for medical issues.

The governmental expertise on the results of tests of dangerous substances is carried out with the aim of estimating the nature and degree of potential dangerous impacts of the substance on human health, natural, economic and other objects; to determine if the suggested measures to provide safe handling of dangerous material are sufficient and substantiated to comply with the requirements of the environmental and sanitary legislation and the laws on industrial safety.

The governmental expertise report should be approved by duly authorized organizations and should contain at least:

a) the motives and bases for taking the decision, including public need for the substance, the class of the materials' dangers, the possibilities of the safe handling of the substance that are following the requirements of the environmental and sanitary legislation and the legislation on industrial safety;
b) an indication in which areas the dangerous material might be possibly used;
c) the measures and rules for the safe handling of the substance;

d) instructions relating to approval of the passport of the safety of the material, its packing and marking, the standards of the state, the norms for the safety levels of impact on the air, natural objects in working place of the dangerous substance, and the methodology of their discovery;
e) recommendations for the creator of the substance.

The duly authorized governmental organizations have the right within their areas of competency to administer all necessary conditions, rules and limitations with respect to the handling of the substance. The aim is to prevent or reduce harmful effect on human health, natural and economic objects, or to restore the violated state of the environment. They also have the right to ban the use of the substance if its handling can cause irreversible damages to the health of people and impermissible pollution of the environment.

The draft law prohibits the taking of positive decisions as to the results of the state expertise, when it is impossible to provide safe measures for the handling of dangerous substances that would be in accordance with requirements of environmental and sanitary legislation or the laws on industrial safety. Equally the law prohibits the making of decisions in the absence of norms regarding a safe level for the impact of dangerous substances on the air in working places and if necessary in the environment. There also has to a methodology for their discovery.

The draft law on dangerous materials allows the creator (producer or importer) of the substance, if there is disagreement with the conclusions, to appeal findings from the state expertise, to any judicial or administrative areas. In this situation, the proper solution can be found in making a new expertise.

Only a positive solution of the state expertise of the dangerous substances can serve as the basis for the state registration of the substance. The state registration is the putting of the substance on the Federal Register of dangerous material. At the present stage of preparation of the draft law, the working group has not decided yet if the registration function will be carried out by *Minpriroda* or the State (Federal) Committee for Standards.

The Federal Register should contain as the least data on:

a) the registration number of the dangerous substance;
b) the identification of the substance;
c) the major characteristics and properties of the material,
d) production volume and spheres of use of the substance;
e) safety measures and rules; and,
f) norms of safety levels of dangerous substance impacts on the air in working areas, if necessary in the environment, and on the methods for their discovery.

Registration of dangerous material is an essential preventive legal tool for the control mechanism. According to the law, there is a prohibition on the use of dangerous substances not included in the Federal Register

Submission of information on dangerous substances to authorized state governmental organs for making the expertise can touch some special interests of the creator (producer) of the substance. If so, the creator (producer) has the right to keep confidential information. If the creator (producer) considers that the information which is to be submitted contains commercial or technological secrets, there must be a submission that confirms: 1) that the concealed data is confidential, and 2) the secrets are disclosed when the information is submitted. The creator (producer) of the dangerous substance has a right to require the signing of an agreement that commercial or technological secrets will be observed.

Concurrent with the state expertise about the test results of dangerous substances and the registration of substances in order to strengthen the principle of prevention of damage that can be caused when dealing with such materials, the draft law on dangerous substances requires special permission for the production, transportation, storage and in certain cases, use and disposal of dangerous substances. One can assume that registration would be enough, for example, to lead to the production of dangerous materials that will meet safety requirements.

Yet in Russia we have some special situations. First, we do not have developed and stable legal traditions. In addition, many enterprises are not ready to try to insure compliance with the requirements of the law in the course of producing dangerous substance, because of technical and technological reasons, for reasons of industrial safety. This is why the draft law stipulates that permission for the production of dangerous substances is granted on condition the enterprise possess the technology, technical means as well as the personnel with the necessary education which permits compliance with the requirements of the law on dangerous substances, environmental and sanitary legislation and the laws on industrial safety.

Thus, the granting of permission for the production of dangerous materials and also for their transportation, storage, disposal is considered in the Russian legislation as an additional legal means or a safety control mechanism.

The importation of dangerous substances to Russia is allowed if the imported substance meets the safety requirements envisioned in the Law. Requirements for carrying out the state expertise and registration of the substance are applied completely to importation of dangerous materials from abroad.

The duly authorized state agencies in the area of handling of dangerous substances have special authority to prohibit or strictly limit the use of dangerous substances in Russia. The dangerous substances prohibited for use in Russia or strictly limited, are

to be included on a special list. There is a prohibition on the importation into Russia of any material included on this list.

In trying to provide for the safe dealing of dangerous substances at any stage of their production, transportation, storage, sue and disposal, depends heavily on the information available about these substances. According to the draft law, officials and workers of enterprises have the right to receive full and reliable information about the substances as well as the precautionary measure when dealing with them, before they engage in direct handling of dangerous substances. The draft law prohibits the handling of material when the given information is absent. It is the duty of a supplier (producer, importer) to submit all the necessary information about the substance to the employees of the enterprise.

The draft law requires that upon the request of the duly authorized governmental organizations, interested public organizations and private directors of the enterprise are obligated to submit within two weeks certain information. This should be about the volume of the dangerous substances that are in circulation, the characteristics of the harmful effects on the health of people and on the environment, and any other information that is in accordance with the request but allows for the confidentiality of the information.

Important requirements have been provided for special training of persons dealing with dangerous materials. These should have knowledge as a minimum on:

a) the properties of substances, their possible harmful effects on human health, the environment, and economic objectives;
b) precautionary measures when dealing with them;
c) first-aid measures; and,
d) actions in accidental situations.

A certificate should confirm the qualifications of persons who deal with dangerous substances.

The recording of dangerous materials is another regulatory measure expected to strengthen the control. It is the duty of enterprises that produce, transport, use and dispose dangerous material to maintain records of these substances. The draft law prohibits without proper documentation the receiving and supplying of dangerous substances.

Administrative and criminal sanctions as well as requirements for compensation for damages caused by violations of the dangerous substance control laws are to serve as the main tools for the enforcement of this legislation.

These are the basic legal provisions for insuring the safe handling of dangerous substances in Russia. The Western countries have created their dangerous

substance control legislation a long time ago. When developing our draft law we have studied the foreign experience and used it. The Russian draft law on dangerous substances was twice examined by professors at Frankfurt University. The assistance of these German colleagues was very important for the creation of the up-to-date environmental protection legislation for the new Russia.

Concurrent with the dangerous substance control legislation, Russia has created at present a number of other laws in the area of environmental protection. This legislation, somewhat similar to that in European and world legislation, will lay down a basis for the progressive development of Russia as part of Europe and the world.

13. PEOPLE, THE AUTHORITIES AND SOCIAL INSTITUTIONS IN POST-CHERNOBYL RUSSIA: THE RESULTS FROM SOCIOLOGICAL STUDIES IN THE REGIONS AFFECTED BY THE DISASTER

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Introduction

Let us first summarize what we generally discuss in this article. We base our report on the analysis of data gathered in 1990-1993 during representative sociological studies, conducted under the leadership of the author, in Russian regions affected by the Chernobyl disaster. In 1995 a monitoring study was carried out among one of the groups described in this paper (see Mozgovaya, 1996) but we still consider the results discussed further as substantially representative.

While working in the affected regions for getting primary data for our sociological research face-to-face interviews were used as well as questionnaires filled out by respondents, sometime done in the presence of researchers or otherwise returned by mail. There were different data bases: from random samples, and also from information obtained from special categories or groups (e.g., teenagers, medical personnel, local managers, participants involved in the clean up of the damage done by the disaster). Our data analyses were done with *SPSS*.

The main hypothesis of our study is the supposition that the Russian idea for the social support or help for the victims of Chernobyl is not adequate for the specific features of the stress that different groups are suffering. This stress is related to living under the conditions associated with radioactivity Our research data showed the following. Victims feel alienated from social institutions and the authorities because of imperfect social mechanisms used in the execution of the Russian law aimed at providing social support or help for those who suffered from Chernobyl. This fact has its own significant influence on the postdisaster stress. It increases the strain for the victims

The disaster response strategy of the Russian law

The accident at the Chernobyl nuclear plant, which took place about eight years ago, forced people all over the world to realize that civilization must deal with technological risk. As for Russia, it is very well known that the inhabitants of certain Russian regions were officially informed about the detrimental effects of the radioactivity that was present in their areas a few years after the disaster. It was the Briansk and the Tula districts that suffered the most of the areas affected by the fallout from Chernobyl.

Russian law defines the social support or help that can be provided for those who suffered from the disaster. For this purpose, all affected regions are subdivided into

four categories or zones according to the cesium-137 content per square kilometer, and also according to the annual dose of exposure to radiation. Zone one is an area of absolute social alienation or disaffection since compulsory evacuation from the area was required. Those who originally lived in that zone and have evacuated have the most privileged social economic status of any of the victims.

Besides the first zone of absolute social alienation, there is the second zone. This also is a zone of compulsory evacuation (although it might be better to say relocation, because the evacuation was done during the second or third day after the disaster). The third zone is an area in which people can continue to live but who have the right to evacuate. The fourth zone is also one in which people may continue to live but who have been granted certain social economic privileges as victims of the disaster. The boundaries of all the zones can be revised every three years. The Briansk region is the only place in all of Russia that contains all the four zones just mentioned.

There is in Russia a specific law for social support or help for those citizens who were exposed to the radioactive fallout from the Chernobyl disaster. There is also a governmental resolution or mandate that provides many kinds of assistance for those regions who suffered from that fallout. The law defines twelve possible categories of victims. There is a governmental guarantee of material compensations and privileges for victims who had health and property losses after the disaster, and who were subjected to a radiation risk because of living and working on land exposed to radioactive contamination that exceeded permissible levels. We want to emphasize that the law provides very broad sets of social privileges and compensations for the disaster victims.

The research approach

From 1989 until now, the Institute of Sociology in the Russian Academy of Sciences has been involved in carrying out a governmental research program on the social consequences of the Chernobyl nuclear plant disaster. In this paper we set forth the results of some sociological inquiries carried out by a scientific-research group working under the leadership of the author, which deal with problems of social ecology and social protection in Russian society The group consisted of six staff persons. We also had the opportunity, if we needed them to involve other specialists in our research program. Paid interviewers were also used. Some of our surveys were funded by the State Committee and others were conducted using our own resources.

We had one major hypothesis. In all the studies we describe in this paper our hypothesis was that the Russian conception of social support and help for the victims of Chernobyl is not adequate for the specific features of the stress that different groups are suffering because of living in conditions associated with radioactivity.

The data collection and types of studies

Table 1 presents the most significant characteristics of three surveys whose results are analyzed in this paper. For all analyses, the error probability level was 0.95 and the range dispersion was 0 25

First, in 1991, we carried out a study of teenagers, their parents and some specialists in those settlements that had suffered from the Chernobyl disaster. We conducted the studies in eight districts of five large regions of Russia. Then at the end of 1992 we did research, using an accidental sample, on the population of the Briansk region. This means that we had interviews from all districts of the Briansk region including all that had been subject to the fallout as well as those that had not been so affected.

Then in 1992 and 1993 we carried out two studies among those who had been participants during 1986-1989 in liquidating the damage incurred by the Chernobyl fallout. This category of persons is called "*liquidators*" in Russia. Our data analysis used *SPSS*.

Results and discussion

The 1991 Study

The studies, conducted in 1991 in the districts of five Russian regions that suffered from the Chernobyl disaster, showed that a great part of the population we looked at in the settlements studied, showed socioecological stress This stress manifested itself in the following ways.

There was a low level of knowledge about the environment, health and radiation. For example, only 45 percent of teenagers said that they knew about the influences of radiation on health. Only 34 percent said they understood something about its effect on nature, and only 26 percent of teenagers knew about protective facilities and activities against the deleterious effects of radiation. Adults knew even less. More than half of the adult respondents between the ages of 21 and 35 years old did not know how radiation affected genetic factors. Only one third of the teenagers answered that they had heard lectures about the characteristics of radiation and ways of protecting themselves against it. These were lectures given not by specialists, but by teachers, and sometimes by medical personnel.

The population, and in particular the majority of teenagers (especially girls) tended to evaluate their state of health as being bad, pointing out it had worsened during the last two-three years. Symptoms of psychological stress appeared quite often, and can be said to be very widespread in a considerable part of the population. For example, about 40 percent of teenagers answered that for a long time after the disaster, they experienced fear, had a sense of helplessness, and dreaded using food and water.

Table 1

The types of studies undertaken in 1991-1993

Year	1991	the end of 1992	1993
Sample	direct and random in the end	random	random
Real error	from 6% to 11%	3%	3,5%
Type of communication	audience inquests	face to face interview	mail inquest
Respondents	(1) teenagers (N=690), (2) adults (N=837)	people from 18 years old (N=1200)	participants of the pro-ces of damage liquida-tion in Chernobyl in 1986-1989 ("liquidators" -1800 questionnaires were maile and 651 were returned)
Regions	8 districts from 5 regions	29 districts of Briansk region	Central Russia (Moscow, Briansk, Vladimir regions)
Settlements	only suffered from disaster	both suffered and non-suffered from disaster (40 small towns and 83 villages)	all kinds

About 16 percent of the teenagers reported suffering from sleeplessness and a loss of interest in life, with girls exhibiting such feelings twice as much as boys.

As far as adults are concerned, 84 percent of women and 61 percent of men said that during the last three years, their health had become worst. The symptoms manifested were the same as reported by teenagers, but were more widespread. About 20 percent of teenagers and 39 percent of adults said that they wanted to migrate from the area. Approximately 20 percent of adults and 11 percent of teenagers said that they did not want to have children because they were afraid of having sick babies.

Our respondents gave low ranking to the activities undertaken by the authorities for the social assistance and the rehabilitation of victims. The trust that people had about governmental agencies also seemed to be declining together with a decrease of feeling of being socially protected. This naturally resulted in an increase of social tension among the population and especially between citizens and governmental bodies.

The result of the analysis of the surveys conducted in 1991 showed that the key social problem, and the one whose solution affects the solving of other problems, concerned the interaction between the authorities and the population. Inattention to this problem determines the low level of people's knowledge and information about the issues connected with the influence of radiation upon health. It also accounts for the fact that according to the evaluations of our respondents, the governmental groups have held back from helping recovery from the disaster. There was also the feeling that the authorities can neither provide adequate treatment, nor food, nor purification of the environment. The feeling of people of being socially protected and assisted has descended to a very low level This is leading both to the spread of social apathy and an increase in the extent of asocial behavior especially among teenagers.

We obtained very high estimates about the potential risks in daily life situations. To us this demonstrates the existence of heightened anxiety. It can also be seen that children and teenagers are in the category of those with the greatest sense of heightened risk. The gap between expectations, life aspirations and reality, which evidently become more considerable in cases of crises, can turn into personal tragedy for many children and teenagers, who are easily influenced by different radical forces.

What seems even more important is the deformation that we can see occurring in the structure of value orientations. There is a lowering of self-esteem (which is already low), an increase of the feeling of social alienation (especially among teenagers), and a growing tension between the population and the representatives of the authorities.

The situation can be currently described as follows in those regions we studied. On the one hand, according to the opinion of the population, local governmental bodies are not interested in deciding concrete issues connected with the rejuvenation of the environment and the health of the population This results in a lowering of the social

status of the victims. On the other hand, that part of the population with deep interests in the solving of ecological problems, is not yet organized. It does not have leaders and does not have high social status and has not presented itself in concrete actions.

The Briansk Sample

At the end of 1992 we also conducted representative and selective studies of the inhabitants in the Briansk region. We used a questionnaire "Man and environment." The notion of "environment" in the survey done included the economic, social and ecological conditions of living for different population categories.

In accordance with the goals of the research, we obtained random, multistage, and nonrepeated research sample groups. The error probability level was three percent with a dispersion range of 0.25. Our basic sampling used the type of settlement involved (that is, towns or villages). Thus, besides using Briansk in the sample, we also included 40 small towns and 83 villages. We used 29 teams of trained interviewers. The total number of respondents numbered 1,200.

The analysis of the results revealed the following. There was a tendency for a high level of anxiety among respondents in those settlements who had not suffered from the Chernobyl disaster. Our respondents expressed this with respect to the level of social protection they felt they had against organized crime, unemployment, poverty and loneliness. The inhabitants of "*clean*" settlements (those with no or very low levels of radioactive contamination) trusted the authorities less than those in "*dirty*" settlements. Residents of radioactive affected settlements were more satisfied in some life spheres than those from clean areas.

As one can see, 34 percent of our respondents from *dirty* districts are satisfied with their housing conditions. In *clean* districts, 22 percent were satisfied with their housing. Other comparisons for *dirty* versus *clean* areas were as follows: for internal family relationships 54 percent were satisfied versus 44 percent who were not; similarly, for nourishment or food, 26 percent versus 18 percent; for rest opportunities, 34 percent versus 26 percent; for personal income, 31 percent versus 18 percent; and for medical service 34 percent versus 25 percent.

Additionally, the residents of *clean* districts more often suffered from the harmful effects of different ecological problems, at least according to their subjective estimates. In radioactively exposed districts ,40 percent versus 30 percent of those from *clean* areas rated their health as bad. In *dirty* districts 70 percent of our respondents compared with 58 percent from *clean* areas indicated that their health had become worse during the last three years. However, we did note that there was no difference in medical visits for respondents from *clean* and from *dirty* districts.

We undertook some special multiple analyses. These revealed that in some settlements there was a connection between health symptoms which were worsening

Table 2

Satisfaction in different spheres of life

Life spheres	"Dirty" settlements (%)	'Clean" settlements (%)
Housing conditions	34	22
Internal family relations	53	44
Nourishment	26	18
Rest opportunities	34	26
Personal income	31	18
Medical service	34	25

and where there was suffering from ecological problems. Also, in two districts in the alienation or first zone and from the second zone where evacuation had occurred, there was a tendency toward an increase in migration rates and in the use of alcohol.

A comparative analysis of governmental statistics and data from our case study in the Briansk region, showed some changing demographic indicators. First, it must be stressed that the postdisaster stress did not influence behavior connected with getting married. However, living under stress conditions contributed to the destabilization of internal family relationships and influencing families to limit themselves to one child. Post disaster stress has the greatest effect on migration behavior. We saw that about half of all migration tendencies were caused by the Chernobyl disaster.

The liquidators in postdisaster Russia

This year we began an inquiry into those who participated in the postdisaster recovery effort after the catastrophe. In Russia we call these people *liquidators*. First, we should note that these persons are not professionals. There is in Russia at the present time, no professional assistance or recovery service for the longer run problems of victims. All the *liquidators* were taken away from their families, their regular work and their real daily life, and put into a situation of high risk. Almost all of them did not know when they were conscripted through local military departments, about where they were going and for what they were being recruited

The *liquidators* is the category of Chernobyl victim whose losses have been the most harmful. We consider below some aspects of their living conditions. The foremost and most important was the family. At the time of our study, 85 percent of liquidators were married. Among them, between 1967 to 1993, only 16.5 percent had divorced. However, 39 percent of them got divorces in the post Chernobyl period, from 1986 to 1992. The dynamics of divorces can also be seen in the following. Looking at different years and those in which the *liquidators* took part in the recovery effort, it is clear that in the year that followed, there were a great number of divorces among them. From 1989 on, we can see this tendency of high divorce rates among this category of Chernobyl victims. We should also keep in mind that there were two groups of *liquidators*. First, there were those who were in the Chernobyl area in 1986-1987. Then there were those who were there in 1988-1989

Of the married respondents, 31 percent were not sure about the stability of their marriages, and 15 percent thought that this resulted from the radiation factor. About 27 percent of the *liquidators* though that their internal family relationships had worsen after the disaster. While 89 percent of them have children, fully 61 percent now do not intend to have any more children.

In the work area, some problems have also appeared. Nearly a third, 32 percent of the *liquidators* do not have the same job as before, and half of them associate this with the fact of the worsening of their health. Almost three quarters or 74 percent of

them consider that their health has become worse in the last two-three years, with half of them saying that their health is bad.

During our analysis, we separated our respondents using their health status into two groups or categories. One consisted of those whose health had deteriorated after the Chernobyl disaster; the others were those whose health had not gotten worst.

When we compared the two groups or categories, we found the following. Of those whose health had not deteriorated after working at Chernobyl, only 5 percent reported that their internal family relationships had gotten worst; for those whose health had been affected, 48 percent reported a worsening of those relationships. Similarly, 45 versus 28 percent reported using more alcohol; 15 percent versus three percent reported becoming addicted to alcohol.

It turns out that there had been a significant deformation in the life mode of the first group of *liquidators*. In this category of victims, twice as many workers reported that they were forced to change their jobs because of their worsening health. Nearly half or about 48 percent of the *liquidators* from the first group compared to 5 percent from the other category noted that their internal family relationships had gotten worse. The first group also reported more of an interest in religion after the Chernobyl disaster. The same can be said about a decrease in social communication and a greater feeling of loneliness.

Of those who suffered from Chernobyl, one and a half times more were less sure of the stability of their marriages. They also gave lower estimates of the level of social protection or assistance they were receiving. They especially noted problems in working places, poverty, loneliness and unemployment.

Our conclusion is that *liquidators* and their families were strongly affected by the Chernobyl disaster. The deterioration of their health status is the very factor causing modification of the life style of themselves and their families, particularly in their perception of social relationships and job security and in interfamily relationships.

The specific problems of *liquidators* present problems for the different social institutions that are responsible for carrying out the law on the Chernobyl situation. It should be noted that the social problems that the *liquidators* have to face after the disaster are not their private problems; they share those problems with their families. Yet the Russian conception of the social support or aid needed for the victims of Chernobyl is based on the idea of the individual victim, and not on the idea that the family is the real victim and which should be the object of attention.

Conclusions

The main problem for victims lies in the fact that the control of a just and fair execution of the relevant law is entrusted to those social institutions that have the formal

responsibility. These are local authorities, which are still today in Russia called "Soviets." An even greater paradox lies in the fact that the staff and personnel of these organizations have been trained in a totalitarian political and economic paradigm. This means that the present day bureaucratic Russian official, as did his colleague of yesterday, waits to receive many instructions from above, from higher level officials.

Unfortunately until now, citizens in Russia identify the government not with any particular legislation or law, but with the officials, the bureaucrats who treat any situation in their own ways. This is partly so because the courts and the judicial system in Russia are still very weak.

Therefore, this is the key problem: to increase the effectiveness of a just law for the social support or help for the victims of Chernobyl. For example, the government through the laws it has passed guarantees living or housing space in new settlements for those persons evacuated from dangerous zones. However, those who go to those settlements find that there is no housing, no jobs, no medical service, because nobody wants them and their children to be there. One result of this situation is a re-emigration back to the more dangerous or perilous settlements.

As to *liquidators*, their major problem is the attitude of others toward them. This attitude is not a good one for the tragedy that these victims have undergone. Their position in the society, their values for the society are not recognized. More than that, even if they get material compensation, there is still a humiliation, a feeling of inferiority.

Unfortunately, the Federal Act for Social Protection of the Citizens Impacted by Radiation as a Result of Chernobyl Disaster (see Federalni Zakon, 1995) is based on the idea of material compensation. It does not allow for the mental prejudice that can exist toward the victims. Mental prejudice can be compensated only by relevant measures, not only with the help of privileges and money. There is a need for help from specialists in the field of psychology and other behavioral disciplines. However, in Russia there are no such relevant professional assistance or recovery services, and there is no culture or tradition of providing civilian help.

Our research data show that because of imperfect social mechanisms, victims feel alienated from social institutions and the authorities who are executing the law in Russia that is intended to provide social support or assistance for those who suffered from the Chernobyl disaster This fact has its own significant negative influence by increasing the strain in the post disaster stress situation.