University of Delaware
Disaster Research Center
Book and Monograph Series

#29

SOCIAL SCIENCE RESEARCH ON MITIGATION OF AND RECOVERY FROM DISASTERS AND LARGE SCALE HAZARDS IN RUSSIA

B. N. Porfiriev
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Co-Editors

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СОЦИАЛЬНЫЕ ПРОБЛЕМЫ ПРЕДУПРЕЖДЕНИЯ И ЛИКВИДАЦИИ КРУПНОМАСШТАБНЫХ АВАРИЙ И КАТАСТРОФ В РОССИИ

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Ньюарк Москва 1996

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ABBREVIATIONS AND ACRONYMS OF ORGANIZATIONS

The abbreviations and acronyms of the Russian organizations most frequently cited in the volume are presented below. In the papers they are also specified with capital letters and the meaning of each abbreviation (acronym) used for the first time is given there. As to abbreviations and acronyms of specific terms they are commented upon directly in the papers and marked there with capital letters.

CBFP - Chief Board of Fire Protection in the Ministry of Interior of the Russian Federation (predecessor of the SFS)
CDS - Civil Defense Service
CENTROSPAS - Central airmobile team of the MCS
CIS - Commonwealth of Independent States

DIA - Department of Internal Affairs (in the regions of Russia)

FIPRES - Fire Prevention and Rescue Service in the Ministry of Interior of the Russian Federation (predecessor of the SFS)

GKCS (Emercom) - The State Committee for Civil Defense, Emergencies and Elimination of the Consequences of Natural Disasters of the Russian Federation
Gosatomnadzor - The Nuclear Regulatory Committee of the Russian Federation

IAEA - International Atomic Energy Agency

MCS - The Ministry of Civil Defense, Emergencies and Elimination of the Consequences of Natural Disasters of the Russian Federation
MIA - The Ministry of Internal Affairs of the Russian Federation
Minatom - The Ministry for Nuclear Energy of the Russian Federation
Minpriroda - The Ministry of Environmental Protection and Natural Resources of the Russian Federation
MOD - Ministry of Defense of the Russian Federation
MOH - Ministry of Health Care of the Russian Federation

REST - Regional Special team (of firefighters)
Rosgeokom - The State Geological Committee of the Russian Federation
Rosgidromet - Federal Hydrometeorology and Environmental Monitoring Service of the Russian Federation
RUSES - Russian System of Preventing and Eliminating Emergencies

SERES - Search and Rescue Service
SFS - State Fire Service in the Ministry of Interior of the Russian Federation

ACKNOWLEDGMENTS

My thanks go to my Russian colleagues who did their best to prepare original manuscripts, translate them into English, and who later updated and revised their papers. Since most had not attended the seminar in Moscow that was the source of the idea for this volume, they had no obligations to do anything. Nonetheless, they kindly and effectively responded to my initial request to prepare a contribution for this book. I also want to thank Dr. Alla Mozgovaya for her organizational support in my coordination activities with the authors, and Dr. Gevork Pogosian from Armenia for his unique and valuable contribution from outside of Russia.

Prof. Quarantelli also deserves my special thanks for his patience and indispensable efforts in editing by the spring of 1996 the initial English versions of the papers including my own, and that made them publishable outside Russia. Any omissions and misprintings, as well as other imperfections in the volume if any is detected, should be considered as my personal responsibility. Prof. Quarantelli also helped me in developing my contacts with Dr. Pogosian who wrote his paper while on an extended visit to the Disaster Research Center (DRC). Also, I would like to express my acknowledgments to the colleagues of Prof. Quarantelli in the United States both for their active participation at the Moscow seminar and their support in my visit to DRC in 1994 that facilitated and accelerated the work on this volume.

Boris Porfiriev

November 1996

I too want to state my appreciation for the work of all the authors that my co-editor has acknowledged. However, I must particularly thank him since in the division of labor involved in producing this volume, he did by far the bulk of the work. Operating in the very difficult working conditions that currently plague Russian researchers, Dr. Porfiriev persisted, overcame all obstacles, and pull together the final draft manuscript of the volume.

Finally, this volume is physically being produced at DRC. As such, several staff persons have participated in various degrees in the production, and I thank them for their work. In particular, I want to express my specific appreciation to Susan Castelli who somehow managed to turn the draft manuscript which came from Russia in a WordWin computer program into a WordPerfect format. However, my greatest appreciation is for Diane Murray, who as usual did a fine job in processing the manuscript so that it now appears in this form.

E. L. Quarantelli
December 1996

PREFACE

E. L. Quarantelli

In the following introduction to this volume, my Russian co-editor, Dr. Boris Porfiriev (Professor and Leading Research Fellow in the Institute for System Analysis in the Russian Academy of Sciences), details well the immediate reasons for and the ongoing problems involved in the development of this book of readings on disaster research of a social nature undertaken primarily in Russia. It should be additionally noted that the idea of such a book had been in my mind since an initial visit to Moscow in 1989. After hearing during the "Cold War" occasional vague rumors of studies on disasters being done in the former Soviet Union, I found that there was some substance to such stories. In four subsequent visits as well as encounters with Russian, Byelorussian, and Armenian disaster researchers, it became clear to me that it might be worthwhile to expose the larger international social science disaster research community to the work being done there.

Given the extremely difficult professional working conditions in the former Soviet Union, there were times when it looked to me like no book could be produced. However, almost exclusively through the indefatigable efforts of my co-editor, draft manuscripts were slowly collected and laboriously translated into English. This achievement is particularly worthwhile given that no funds were available for anyone involved in the enterprise, and most contributors to this volume had to take time away from their daily struggle to survive, which often means working concurrently at several different jobs.

In my view, one end result has been definitely worthwhile. This collection reflects the range of studies being undertaken, the topics of current interest, the various methodologies being used, and generally the thrust of much of the disaster research in the former Soviet Union and especially contemporary Russia. As such, I believe this is a major contribution to both the ongoing and necessary internationalization of social science disaster research, something that I have extensively discussed elsewhere. Until we in the field root our research findings and observations in as many different social settings as possible, we can make little claim about the validity and universality of what is supposedly known about how individuals and groups behave in disasters. Although it will be up to others to judge the specific comparative substantive value of the contributions to this volume, the intent on bringing other than a purely Western type society perspective to the disaster area, has been achieved.

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1. INTRODUCTION

Boris Porfiriev

In April 1993, an academic US-Russian seminar on the social issues of preventing and mitigating the aftermath of disasters and large scale hazards was successfully held in Moscow. It resulted from the joint efforts of the co-organizers, Dr. Konstantin Popov from the Institute for Systems Analysis of the Russian Academy of Sciences, and Prof. E. L. Quarantelli from the Disaster Research Center (DRC) of the University of Delaware, in the United States.

The continually changing of the political and social situation in the former Soviet Union, which has been considerably complicating the life and work of researchers in that country created substantial obstacles for the organizers and participants. As a result, most scheduled participants from Armenia, Byelorussia, Turkastan and Ukraine could not come to the meeting. Among the complications was the rampant inflation that escalated transportation and living costs, unreliable transportation schedules, and even some difficulties in international passport procedures within the Commonwealth of Independent States (CIS) that emerged after the disappearance of the Soviet Union in late 1991. In addition, the eventual cutting of funds due from the Russian Academy of Sciences in early 1993 substantially undermined the capacity of the Russian side to hold the seminar, although that problem was successfully overcome due to timely and friendly support from the US participants.

Despite all those difficulties, nearly all of the American and the bulk of the Russian scholars who had intended to come to the meeting gathered in Moscow and exchanged their views in their fields of mutual interest. In total, about 20 presentations were made during the three working days of the seminar.

In late 1993, the DRC published as partial Proceedings of this academic forum a voluminous set of papers produced by the American participants of the seminar (see Quarantelli and Popov, 1993). The bulk of those papers, containing much new material from their own particular areas of specialization in disasters, hazards and risks, represented substantially revised and updated versions of the draft writings prepared by the US researchers ahead of the meeting in the Spring of 1993, and which had been briefly only orally summarized by the authors in their remarks at the seminar. This made the aforementioned publication a really valuable contribution to further progress in disaster studies.

Unfortunately, the aforementioned serious problems which initially plagued arranging and setting up the seminar, spilled over into producing a Russian set of the seminar Proceedings. A few Russian participants of the meeting, including its co-organizer, Dr. Popov, for economic reasons had to leave their institutions or/and gave up research in the field, while some of them turned to part-time academic schedules thus limiting their working thoroughly on their manuscripts. Those and other objective and

subjective conditions considerably impeded the work of the contributors from the former Soviet Union in preparing extensive English versions of their seminar oral presentations, as well as efforts to assemble a publishable collection of the papers in 1993 and 1994.

During my visit to the DRC in Spring 1994, both Prof. Quarantelli and I shared our deep concern on the pronounced delay in preparing the second (i.e., Russian) volume of the Proceedings. We therefore developed a blueprint to radically change the situation for the better. It was agreed that a forthcoming set of papers from the former Soviet Union (in English) should not necessarily be considered as the second volume of the seminar Proceedings given the substantial time that had passed since the meeting in Moscow. In fact, there have been a number of substitutions among the contributors to this volume, most of whom did not participate in the seminar. Later in 1994, Dr. Popov generally agreed that I would take the work load and responsibility for carrying out the aforementioned blueprint, including the soliciting and initial editing of the English versions of both "old" and "new" papers.

In the following months, my Russian colleagues as well as Dr. Pogosian from Armenia prepared original manuscripts and translated them into English. I did an initial editing of these drafts and sent them to Prof. Quarantelli in mid-1995. In turn, he did further editing paying particular attention to the English used. Finally, the revised manuscripts were returned to me in early 1996 for further editing, which involved contacting many of the authors for clarification of certain points. The final version was finished in November 1996.

Although much has been done by the co-editors in order to correct minor imperfections in the draft papers and make their translation into English sound better, we tried to keep the original style of the authors, sometimes even at the expense of the smoothness or the fluency of the translation. There are at least two reasons for doing the last. First, we did not want to challenge the basic right of authors to express his (her) ideas, in the way he (she) considers the best. Second, the diversity in the specializations of the authors (sociology, psychology, medicine, engineering, etc.) and the multidisciplinary nature of the topics of their papers, makes it extremely difficult even for a comprehensively educated person to fully understand all the specific details described. As such, each author of a paper is therefore fully responsible for its contents.

The volume includes 13 papers subdivided under five sections. *Section A* deals with the development of sociological research on disasters in the former Soviet Union as well as present-day Russia. In this section there are three papers: two of them, by N Lapin and K. Popov, describe the situation in the field in Russia, while the one by G Pogosian refers to more general points illustrated by the case of the Armenian (Spitak) earthquake in 1988.

Section B includes two papers that consider important issues in the interrelationship between disasters and development. The first one, by S Miagkov, highlights this point within a "nature - ethnos" sustainable development framework, based on an original concept of ethnos elaborated by the Russian philosopher and historian L. Gumilev. In the next paper, V. Kafidov and N. Brushlinskiy using a sociological framework, analyzing the dichotomy "development - fire safety" speculate on the possibility and perspectives of treating sociology of secure life activities as specific though organic element within traditional sociology. They argue that this new discipline "marry" sociology of organizations and sociology of behavior.

Section C analyzes substantive disaster research in present day Russia by applying a systems approach to cases of large scale technological accidents in 1993. There are also two papers in this section. The first paper, by B. Porfiriev, comprehensively scrutinizes the worst radiation accident after Chernobyl that occurred in a former "shadow" (i.e., secret) town in the Southern Siberia, while in the following paper the same author and A. Mikeev highlight the causes, the organizational responses, and consequences of the fire at the Kamski Car Plant, the largest truck plant in Europe.

Section D sets forth substantive research results obtained in studies of the social, psychological and medical impact of radiation and chemical accidents that occurred at military and civil facilities in the former Soviet Union. It includes three papers. The first one, by G. Rumiantseva, A. Martyushov and D. Plyplina, tackles the peculiarities of the psychic and psychological reactions in communities impacted by the Chernobyl disaster. N. Meshkov and his coauthors in the following paper analyze social and medical (both the somatic and mental health impacts) issues affecting the professional skills of the population of the Altai region in Southern Siberia (in Russia) affected by nuclear weapons testing in the Semipalatinsk area in Kazakhstan. In the concluding paper in this section, V. Lupandin presents an ecological and medical risk analysis of the procedures involved in the elimination of mass destruction weapons.

In the last, *Section E*, there are three papers that report substantive research results in the field of social, legal and organizational response of Russian communities and authorities to disasters. The first one, by M Brinchouk, highlights recent improvements in the Russian legislation for the control of dangerous substances before, during, and after a technological accident has occurred. A. Mozgovaya in the following paper, basing her remarks on sociological findings from field research, details changes in the social, legal and organizational responses in the recovery phase of the Chernobyl disaster. B. Porfiriev, in the concluding paper, reveals the involvement of the authorities at various levels in responding to the worst natural disaster in the modern history of Russia proper, in the Sakhalin earthquake of 1995.

A. DEVELOPMENT OF SOCIOLOGICAL RESEARCH ON DISASTERS IN RUSSIA AND THE CIS

2. THE DEVELOPMENT OF SOCIOLOGY AND DISASTER STUDIES IN RUSSIA

N. I. Lapin

The problem of disasters has a direct relation to the history of Russia and Russian sociology. Without going far back into the depths of history, it is sufficient to note the disastrous shocks of two revolutions and the civil war of 1917-1920, as well as the disintegration of the Union of Soviet Socialist Republics (USSR) in 1991. Today Russia is facing another major crisis.

Development of Russian Sociology

Sociology as an independent field of knowledge arose in Russia in the middle of the 19th Century, within the context of the reforms of Russian society undertaken in the 1860s by Alexander II and his government. These reforms abolished serfdom, opened the way for a capitalist economy, and local self-government and independent courts. However, this brought about not only a social uplift, but also the subsequent criticism of radical intellectuals who were dissatisfied with the gradual character of the reforms whose completion would take no less than several decades. This radicalism was armed with the ideas of revolutionary socialism whose theoretical foundations were grounded in the "subjective method" within sociology. It was opposed by moderate reformism, which regarded sociology as a science about the objective social order and its evolution.

The founder of the subjective method in sociology in Russia was Peter Lavrov (1823-1900). He proceeded from the starting point that the principle agent of the social process is the active and critically thinking individual. In his world view, objectives and evaluations are essentially subjective, and practical philosophy, sociology and history should be based on, subjective methodology (Lavrov, 1868, 1870). The same attitude was shared by N.K. Mikhailovsky (1842-1904) and some other social thinkers of the late 19th Century.

In contrast, Maxim Kovalevsky (1852-1916), who came to sociology from historical research in ethnography, economy and law, saw as the principal task of sociology the seeking of "the causes of the continuity and dynamics of human societies, of the stability and advance of order in different eras and in their causal relations" (Kovalevsky, 1910: 9). He strove for the harmony of the interests of different social classes, which for him was the prerequisite for social advances, and he was opposed to revolutionary methods for social change. This trend in sociology was quite widespread in Russia at the start of the 20th Century. In 1916, the "Kovalevsky's Russian Sociological Society" was founded. The Secretary of the Society, Pitirim Sorokin (1889-1979) had developed extensive social, scientific and teaching activities. In spite of obstacles, he succeeded in publishing in 1920 his "System of Sociology" in two volumes -- the principal work of his Russian period, before he went to the United States

Both of these trends were criticized by Marxists (such as G V. Plekhanov, V. I. Lenin and others), who stood for the dialectic synthesis of the objective and subjective approaches to sociology. After the Revolution of 1917, this criticism became repressive. In 1922, Sorokin together with other intellectuals who were in opposition to the existing situation, were deported from the country. During the 1920s, Marxist sociology got rid of rival trends. During the first period after this, it went through a steady advance due to the development of its specific branches (works by N.I. Bukharin, A. Gastev, S.G. Srumilin and others). However, during the 1930s, under the direct influence of Stalin, sociology was labeled as a bourgeois pseudo science, incompatible with Marxism. All theoretical and applied studies in this field were eliminated, except for the criticism of Western sociology. This was done to secure the ideological monopoly of Communist Party of the Soviet Union and was accompanied by a spreading of social and political mythology. All of this lasted until the 1950s.

With Khrushchev criticism of the Stalinist "cult of personality" at the XX Congress of the Communist Party of the USSR, an ideological "thaw" started. It was also the period of the regeneration of sociology in the country In 1962 the Soviet Sociological Association was formed. In 1968 the Institute for Applied Research of the Soviet Academy of Sciences was set up. In the 1960s, there resumed a discussion on the relationship of Marxist philosophy to sociology. Also, the first large scale empirical studies were carried out: in Sverdlovsk, Leningrad, Gorky, Novosibirsk, Moscow and other cities and regions of the country (see Osipov, 1967; Zdravomyslov and Yadov, 1967). These achievements were reported and recognized at the 6th and the 7th World Congress of Sociology (in 1966 and 1970).

In the 1970s and 1980s, sociological studies and teaching expanded and there was the maturation of Russian sociology. By the end of the 1980s, there were more than 600 sociology departments including institutes, university departments, laboratories, research units, etc. Most of them were located in Russia, rather than other places in the Soviet Union. Research was undertaken in more than 30 different sociological areas. However, all of them had to fit into one general Marxist framework.

The failure of the coup in August of 1991, which brought the Communist Party down from power, and the disintegration of the USSR by the end of 1991, created a generally new situation. The Russian Federation became sovereign, and economic reformation started which has led to a general crisis A demand has appeared for Russian instead of Soviet sociology. However, with the breakdown of the former system of governmental support for fundamental research, sociological institutions were forced on to a path of commercialization. Fundamental research was replaced by conjectural opinion polls, well paid for by domestic and foreign mass media. Nevertheless, a significant portion of Russian sociologists has resisted this general tendency, and seeks ways to continue fundamental research and to elaborate original theoretical concepts for the explanation of the nature of the crisis. In this, they are supported by the Russian Foundation for Fundamental Research (founded in 1992), the Soros Foundation (from the US), and some others.

Disaster Research in Russia

The problem of disasters is rather new for Russian sociology. Certainly before this time, some attention had been paid to social aspects of safety conditions in industry, the consequences of natural disasters (earthquakes, etc.), but these issues were at the periphery of social research. This situation has rapidly changed after Chernobyl and especially after the collapse of the USSR as a super social system.

By the term "disaster" I mean the destructive result of the evolution of an object, its instant disintegration and absorption by the environment ("annihilation" of a system, so to speak). Very often it is accompanied by human losses, damage to health, social disruption, and personal tragedies.

Traditionally, the Russian mentality is characterized by carelessness with respect to potential dangers, relying upon so-called "Russian maybe." Besides, the cost of human lives was not valued highly in the USSR. But Chernobyl stirred up the anxieties of the population not only in the European territories of Russia, but in Asia as well, which also is under the permanent threat of radioactive contamination. As our research under the title of "Our Values Today" has shown, ecological threats are perceived by Russian citizens as the most acute, being placed ahead even of the universal shortage of consumer goods (see Lapin, 1993).

The disintegration of the USSR in 1991 has created a crisis of identity for Russians. They have lost a significant part of their territories and almost half of the total population, and face the threat of a subsequent separation of former autonomies. The present day Russia is not identified in the public consciousness with their historical home state. This is even worse for the 25 million Russians who instantly have been turned into citizens from " close abroad." This macro catastrophe is further aggravated by the burdens of everyday life, inflation, and the reduction of production.

The loss of ability to manage industry is also catastrophogenous. The number of accidents in industry and transportation, accompanied by human losses, has rapidly increased. The responses of authorities to them have also generally slackened. Rapidly deteriorating also is the responsibility of administrators for the safety conditions of working places, and the professionalization of workers.

Russian sociologists have not yet defined a strategy for their actions. Organizational prerequisites for such actions are also underdeveloped. We have an urgent need for an analysis of how to resolve the social problems of disasters. This should be done with the cooperation of foreign colleagues. I believe that the Russian-American seminar held in 1993 can provide a significant impetus for the advancement of a new trend in Russian sociology--the study of the sociology of disasters.

3. OBJECTIVES AND CHALLENGES FOR SOCIAL RESEARCH ON DISASTERS IN RUSSIA

K. N Popov

We see the field of disaster research as being divided into four problem blocks.

The first block deals with settlements. This could be the settlement of people in hazardous zones, or the location of risky industrial facilities close to cities or villages, that is, in regions of potential hazard to the health of the population in case of an accident.

The second block is related to the level of security involved in a physical object or agent and the minimization of unpredictability from the functioning of that object or agent. Here we can include research into and prognosis of activities in sources of natural disasters, and from the viewpoint of security, the perfection of planning, construction and utilization of artificial objects.

The third block has to do with defense. It includes systems of disaster prevention (e.g., dams of various kind against outbreaks, overflows, etc., anti-seismic constructions, etc.).

The fourth block includes the preparation of populations for potential disasters.

The sociology of disaster that pays major attention to the fourth problem block, also in different degrees touches upon the problems of the other blocks

Every one of these problem blocks has a background coming from the interests of different groups and individuals who make decisions or have other relationships to the problems of the blocks. Here, the important task is setting forth the list of subjects of activities, and whose interests and opinion should be taken into account in the processes of problem formulation and solving. The consequences of reducing such a list down from the decision of one person, are well-known. However, setting forth the map of interests may help for the better understanding of situations, group motivations and conflicts, and makes it possible to foresee future events

1. Populations become the victims of disasters, not being able to be an active subject in the situation. An informational vacuum and the manipulation of public consciousness leads to the elimination of the population from the process of decision making concerning their serious daily interests.

This elimination of the population in the process makes possible a distortion of objectives, the appearance of casual actors, and the functional perversions of the whole social enterprise. This is also true for science. We know cases where the

search for truth was replaced by distorted results that reflected the orientation of certain power structures.

The first movement which in Russia significantly defended the interest of the population, that is the "greens" and the ecologists, has now significantly weakened. At the same time, the spectrum of actors who have their own group or personal aims confronting communal objectives, and who are lobbying for their own interests, is widening.

Clearly, these two major tendencies can be perceived, not only in the disaster preparedness area, but also in other spheres. Yet in disaster research the lack of attention to the interests of as many social groups as possible can be especially dangerous.

2. The crisis time is the period for the breakdown of hierarchical structures of power, resulting in lesser responsibility for higher orders of authority. Disaster preparedness and mitigation may be investigated at different levels: Federal, regional, institutional and individual.

In Russia the State Committee for Extraordinary Situation functions only at the federal level. Regional authorities generally have difficulties in answering questions about whether their region is located within a hazardous zone, and who is responsible for the security of the population. Usually the authorities advise you to ask those who are responsible for security about objects of higher risk. The explanation for this fact is that until very recently the list of Russian officials who had information about the location of risky objects, was strictly limited. For others, they were not aware of any hazard at all.

In looking at the literature about the sociology of disasters on our bookshelf, we can see that it is practically empty. The subject index of our major library, that is, the Institute for Information on Social Sciences of the Russian Academy of Sciences, contains no such topic. And even those few papers that we have are dominated by the thesis that natural disasters can be successfully and effectively dealt with only within a centralized socialist system.

Comparing our present situation with what we have had in the past, we indeed can find some confirmation for this statement. The strict hierarchical system of responsibility, and the centralization of financial resources did indeed give an opportunity for sufficiently rapid disaster response and mitigation, for the effective work of geophysics laboratories, of technical services, etc.

Now with the splitting of our country, with the breaking of informational networks and of social security structures, with a catastrophic brain drain of specialists, we have the task of creating a substantially new system of disaster prevention and mitigation.

3. It seems important to say a few words about new challenges to sociology, which has arisen now, in the period when the construction of a new system of security is badly needed

There is a significant gap between the representations of situations in hazard zones, presented by a very tiny spectrum of specialists on the one hand, and of lay persons, on the other. It should be mentioned that this dysbalance exists in the form of a population underestimation of potential threats all the way around. From the point of view of a sociologist, it would be useful to survey 15 or 20 regions with the objective of determining the amount of information the population possesses about natural or industrial threats to them potential hazards, and the defense and behavior that would occur in case of an accident. The same questions should be addressed to the regional authorities and to those who are in charge of the services responsible for the health of the local population and for the security of industrial facilities.

The result that might be obtained in this way may not obtain an exact picture of the situation in question. I take the position that a social scientist is not only a social investigator, but also a social actor. I am convinced that scientific results, however convincing they might be, cannot improve a situation without the appearance of social actors who put the problems of the security of their own homes and their neighborhoods in the first place. The spectrum of aims of sociologists should include the task of creating social actors, groups for social control, etc. The recommendations should be given to a group of individuals deeply and personally involved in the problems of improving the existing situation. And these people should be "upbeat."

4. Modern society cannot deal with disasters successfully only by using technical facilities for defense. The rational constructions of our attitudes toward nature, and social analyses are also among the important factors for security. Here we should include the analysis of the situation in question from the point of view of all the four blocks mentioned earlier in this paper. Social research is based not only on information obtained from respondents, but also on a comparative analysis of documents, expert views, results of measurements, etc. Such a comparative analysis is also possible for various (federal, state, private, independent) institutions, and by levels of qualifications of specialists.

It is also very important for a sociologist to determine how much the local population and local authorities know about the results of measurements and expertise, and how scientific results may be applied to decision making in specific situations.

Authorities usually prefer to regard a threat as either nonexistent or improbable. They generally think that they can better understand a situation than cabinet scientists The Russian attitude of "maybe" plays here its negative role. So the

authorities are usually oriented to a very minimal idea about security. And here we also need to do very complex sociological work on the reorientation of the attitudes of the authorities to the problem of security.

In this paper I have mentioned only a few problems for disaster research, but they seem to me to be especially important for present day Russia.

4. FORWARD TO THE PAST

G A. Pogosian

In 1990, the United Nations declared the last of this century as a decade for natural disaster reduction. Natural disasters have been taking place and will continue to occur in the future. These natural events mean that the formation, development and deterioration processes still occur in nature. They will never end, since this is the perpetual game of natural forces.

However, the intensive industrial activity of man during the last decades has brought new, so-called anthropogenic disasters (see. Porfiriev, 1988; Prigozhin, 1989). Quite often this activity results in the disruption of the relative balance of forces in nature, which in its turn, triggers disasters. In other cases, this activity immediately causes technological hazards: explosions, water pollution, forest fires, etc. The number of small and large scale disasters has been increasing along with expanded human activity on the earth.

Each year, hundreds of thousands of people die in different disasters; Even more persons lose their shelter and conventional way of life. Thanks to the mass media, people witness more disasters taking place in the most remote areas of the planet. Disasters gradually enter our everyday life, and become an element of routine consciousness of modern man. They do not become commonplace events, but extraordinary events in the routine.

The populations of world regions with high disaster probability develop a new perception of disasters This new perception is the perception of life in a disaster world, in disaster conditions. People let them into their lives. American social scientists such as Turner, Nigg and Paz mention that in anticipation of a possible forthcoming disaster, millions of people engaged in elaborate discussions of the validity of earthquake forecasts and earthquake threats. According to the results of their research in Southern California, the population became collectively involved in the creation of a generally acceptable concept of reality given the permanent seismic threat (Turner, Nigg and Paz, 1986).

Psychologists assert that there are significant differences in the consciousness of people living in the plains and in mountainous terrain, in coastal areas and forests, and in continental areas and in islands. By analogy, it is possible to say that the consciousness of persons in disaster-prone areas, in high risk areas and in "quiet" areas also differ. During years and decades (and possibly centuries) people develop a distinctive cognitive style. And it becomes a part of their consciousness as a perception of forthcoming calamity, a possible disaster that many destroy their normal life. This is only natural The inhabitants of coastal areas are normally afraid of storms. In seismic regions, people are apprehensive of possible earthquakes. Such feelings and latent fears are alien to the populations of quiet areas. They are just unaware of them.

However, these fears and apprehensions are characteristics of not only individual consciousness With time they become social phenomena, a part of the social consciousness of regions with high risk of disaster. Gradually, they move from the sphere of consciousness and subconsciousness to the sphere of everyday life, and get reinforced in the local customs and rules, e g., in social construction. They create what Russian social scientists call "disaster subcultures" (see: Ladigina, 1994; Mozgovaya, 1993; Nesvetailov, 1992).

In Armenian houses, for example, you will never see dishes put on high shelves or hung on the walls, like can be seen in many areas of Europe, Russia or the Ukraine. Heavy and fragile objects are never put high in Armenia. Until recently, it was not even usual to hang big, heavy chandeliers. People much preferred light and compact lighting appliances. But social memory weakens in the course of time. Social vigilance is lost, which is illustrated by the many victims and extensive destruction during the 1988 earthquake in Armenia.

Natural disasters affect not only social consciousness, but also the course of social development. Many monarchies and regimes changed after disastrous earthquakes. History has recorded that disasters are sometime followed by social distress, political coups, and changes of power. A devastating drought or volcanic eruption is sometime followed by wars and civil unrest. Wars and social distress that follow natural disasters appear to extend the natural tension into the social space. They finalize the destructive processes that started in the bowels of the earth, by transferring them to the social domain, to the space of social relations.

Clearly there is an interconnection between natural and social disasters. The American writers, Amy Golding and Michael Brown in their book on collective behavior dedicate a chapter to the discussion of the post-disaster political transformations in a society. In 1993, a severe hurricane, known as "Hurricane Andrew" inflicted new conflicts that were more hazardous in their ramifications for the social structure than all preceding ones. A comparative study of four tornadoes carried out by Rosow in 1955 also reinforced the idea that official control sometimes is very weakened during a disaster, and that it takes a certain time to reestablish such control in a depoliticized society (Brown and Golding, 1973). After the Chernobyl catastrophe, considerable social deviations and increases of social instabilities and migration processes were noticed (Babosov, 1992; Nesterenko, 1993).

In view of all of the above, it looks like we will have to somewhat alter the strategy and approaches to disaster research including the impact of disasters on society, and in particular the kind of expert recommendations to be made about the rehabilitation period and the return to normal life after a disaster. As a rule, social scientists carry out special research, studying post-disaster behaviors of groups, and their relationship with local authorities and emergency relief groups. However, what is characteristic of industrialized countries and stable social systems, appears to be not very appropriate for less developed societies and unstable systems. The fact that political and social shocks

following or accompanying natural disasters are sometimes more harmful to a society affected by them than the natural disasters themselves, should also be taken into account Therefore, their possible effects should be necessarily considered during the designing of rehabilitation programs.

Often social shocks following major disasters are not their immediate consequences. In some cases they can be viewed as consequences of natural hazards, and sometimes they cannot be so viewed. However, this does not mean that they can and should be viewed separately. After long and deliberate reinterpretations of the process in the research literature, the very terms "disasters" and "hazards" have come to be viewed along at least four dimensions: The physical factor, consequences of the physical factor, the path of impact of the physical factor, and finally, the social decay and changes due to the physical factor and its impact (Dynes, 1974). As mentioned by Quarantelli and Dynes, the disaster (hazard) is often implicitly or explicitly viewed a priori in the research literature as social phenomena, and is therefore to be explained in social terms (Quarantelli and Dynes, 1977).

Our research in Armenia after the famous disastrous earthquake also demonstrates that social, political and economic shocks were not late in following. The three to four year effects of these social shocks were no less disastrous than the earthquake itself. Without dwelling upon the issue of the relationship of the earthquake with the following social quakes, one can surely say that these kinds of disasters and their impacts should be studied in the same methodological framework. The society experienced the impact of both natural forces and social hazards. Their effects overlapped, and in this case separate research is not feasible. Rather the happening should be viewed as a chain of disastrous events that shocked the society at a given historical time.

We should additionally mention that we think the connection between natural and social hazards is not only chronological or historical, but sometimes even deeper and latent. There is a special phenomenological vision that a given society in a given geographical space and a given period of time, suffers from several natural and social-political catastrophes. Even if there is no direct or explicit connection between them, these events cannot be treated separately.

As a rule, social research on catastrophes deals with natural and technological hazards. Occasionally, large scale social unrest such as the protest movements of students have also been studied. But in most cases, as is well noted in the extensive work of Quarantelli and Dynes (Quarantelli and Dynes, 1977) the research has focused on one single hazard. Our approach is based on the idea that in some cases, hazards taking place in a society are the consequence of certain catastrophic events, or are at the roots of new disastrous developments. In other words, this or that single hazard, catastrophe, is often only one link in a chain of disasters that follow each other and shock the society. Therefore, the most adequate approach to disaster research is a methodological one that views each separate catastrophe in a broader social and historical context, as a link in the chain of disastrous events.

Thus, in our view, disasters do not occur as separate random events, but often come as links in a disaster chain, both natural and social and anthropogenic. Besides and therefore, there is a deep-rooted interconnection between various disasters that proves there is a general interconnection between natural and social phenomena. The latter can manifest themselves as physical and social psychological responses to the same cause. It is necessary to move away gradually from viewing natural and social hazards as separate, individual events. This approach is more and more visible in many modern disaster studies

As an illustration of the above point about the need for a complex study of natural and social hazard impact, let us look at the data we obtained at the Social Research Center of the Armenian National Academy of Sciences. The disastrous Armenian earthquake of December 7, 1988 took 25,000 lives, left 500,000 people without shelter, destroyed more than 100,000 houses and apartments) and devastated more than 40 percent of the national industrial base. According to the Richter scale, an earthquake of 6.9 magnitude affected the whole northern part of the territory of Armenia. During the first weeks after the earthquake, 114,000 residents were evacuated from the disaster zone. Some of them were accommodated in rest homes, and in boarding houses and hotels; the others--about 73,000 persons--were taken to Russia, the Ukraine, Georgia and other republics of the former Soviet Union. In addition, many persons on their own, left the disaster area (Pogosian, 1990a, 1990b).

After the earthquake, almost all the Azerbaijanis living in Armenia, i.e., about 200,000 people, left the country. The ethnic conflict between the Azerbaijanis and the Armenians of Nagorno Karagabh--an Armenian enclave within the territory of Azerbaijan--did not abate, but was further aggravated due to the large number of refugees and victims from both side by the blockade by Azerbaijan of automobile and rail roads that carried international humanitarian aid to Armenia.

The magnitude of the disaster was overwhelming, but the consequent events proved to be no less disastrous (Pogosian, 1989). The escalation of the ethnic conflict finally resulted in a very bloody war between the neighboring countries. Thus, both parties had to spend enormous resources and manpower for the war. All internal problems, including the social ones and the rehabilitation of the disaster stricken area, moved to the background. The long blockade of the railways, roads and the gas pipe lines that provided gas to Armenia via Azerbaijan resulted in the complete termination of construction activities in the earthquake zone. All of the construction teams that had come to Armenia from different republics of the Soviet Union, returned home. The industry in the nation was almost completely paralyzed.

The events that also led to the collapse of the Soviet Union also followed immediately after the earthquake. This was also a social shock of tremendous magnitude. The impact of the collapse of a huge empire and its effect on the population has to be considered a disastrous event, no matter how a liberation ideology views the happening. The

liberation from a totalitarian communist regime gave birth of dozens of new independent states that mostly selected a path of democratic development. However, the collapse of the Soviet empire was so destructive that it resulted in very severe economic crises in these states. The traditional economic links between the republics were disrupted, new obstacles in the form of custom duties appeared, and there emerged fluctuations of national currencies, etc. Millions of people lost their jobs.

In Armenia, for example, the unemployment rate reached 15 percent in 1994, although in reality the number of the unemployed much exceeded the officially registered rates. Hundreds of thousands of persons of alien nationalities (in the new nations) became refugees, and had to migrate from their places of permanent residence. In one or two years, the standard of living everywhere decreased drastically. The introduction of market economy elements resulted in the skyrocketing of prices along with insignificant wages of the working labor force employed in the public or governmental sector. About 70-80 percent of the population could be thought of as going below the poverty line. In some periods, the inflation rate of the national currency reached 400 percent. This was the most overwhelming disaster that ever affected the lives of common people of the former Soviet Union after the Second World War.

In Armenia, the events really were on a disastrous scale. First the earthquake, then the blockade, the war, and economic and social crises. The population reached a protracted emergency situation. Four cold winters were spent without central hearing of apartments or any gas supply, without hot water, and with only two to three hours daily of electricity. During the first winter of 1991-1992 when the population was not prepared for such medieval conditions, thousands of mainly single, elderly and handicapped persons died in their cold apartments and houses. Many fell ill and died due to chronic undernutrition, lack of vitamins, and malnutrition.

The average monthly salary in 1994 was two-three US dollars, according to the exchange rate of the national currency, at the same time that the price of one kilogram of meat, butter, or cheese, cost two US dollars. The existing salaries were not sufficient even for a few days. People spent all their savings, started selling all the property and valuable items accumulated for long years. Many received assistance from relatives abroad. According to the results of four years of research the Social Research Center, in 1994 about 54 percent of the urban population of the country lived on external assistance. This took the form of both humanitarian assistance coming from different countries and international organizations, and private assistance from relatives and friends living abroad.

The sciences and the arts, and the education and the health sectors, which used to be very developed in Armenia, appear to be under the threat of extinction. Many scientists, artists, and professors had to leave their jobs and go into commerce and the private sector; others emigrated. According to our surveys, during the last two or three years about 500,000 persons out of a 3.5 million population, emigrated to Russia and other countries (Pogosian, 1994). Emigration increased during the winter months. According to

the surveys, seven out of ten inhabitants of the country, would like to leave either temporarily or permanently

The main obstacle to such movement is the blockade of the roads or the unbelievably high prices of plane tickets The price of one ticket from Yerevan, Armenia to Moscow, for example, exceeds the average annual budget of one Armenian family. As is well known, Armenia borders Turkey, Iran, Azerbaijan and to the north, Georgia, which is also in extremely harsh economic straits and at war with Azerbaijan. Should Armenia have had access to the Russian border, the emigration of the resident population would have been on a massive scale.

The magnitude and character of the disaster that affected the country cannot be fully described in a short article. There is not only the improvishment of the masses, unemployment and migration. There is also the thorough disappointment of people, shift of values, crises of power, political and social alienation, and development of nostalgic moods about the communist past (which is very widespread among the population of the former Soviet Union). In a short period of time, democratic values have become devalued, with many people no longer believing in free choice.

There is also a crisis of trust. There exists not only an economic, but a serious political and ideological crisis. The surveys show that the overwhelming majority of the population regret losing the past and want to return to the Soviet reality with its ideological pressure but with a guaranteed standard of living. The new democratic order has not yet revealed its advantages. However, the negative aspects of the transition period threw many into the street, doomed many to misery, and created an anticipation of a miserly future. Many individuals still rely on government assistance and on the government support for vulnerable population groups. But the government is finding it increasingly difficult to find resources from a badly stretched national budget to support social programs.

Many have come to view socialism differently, to reconsider its values as well as shortcomings. In the eyes of millions of people, the changes of the last years are a return to a long forgotten past. The oldest generation still remembers the prewar and war periods when bread and other goods were distributed by coupons. Today, this long forgotten nightmare again has become a part of reality. The main concern of many people is to obtain the daily subsistence for the family, and for heating. Half of the trees in Yerevan were cut down in the winter during the first blockade and were burnt in iron and cast iron heaters of a prewar type that were inside contemporary apartment blocks. Cold, starvation, and darkness in apartments, is a burning reality for hundreds of thousands of Armenian families today on the eve of the 21st Century Only several years ago, they lived incompatibly better conditions. Many consider it as a price they have had to pay for independence and democracy.