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Institutional and legislative issues of emergency management policy in Russia

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Abstract

The emergency management policy as an organic component of the national development policy in contemporary Russia exists only for a slight more than a decade. However, its basic trends and directions could be revealed. In the legislative area covering technological accidents involving hazardous materials these include increasing differentiation of acts in terms of issue coverage, gradual integration of legislation via enforcement of the so-called systemic (umbrella) acts and increasing incorporation of specific acts, and keeping dominance of federal emergency acts. In addition, emergency legislation and policy programs on communities' protection against major hazards drift from alleviation-oriented towards more mitigation-focused. Meanwhile, the bulk of the existing acts are still specific laws and regulations, which consider most emergency response. In institutional realms the key direction of emergency policy development involved organization and progress of the Unified State System for Emergency Prevention and Elimination of the Russian Federation (USEPE) with EMERCOM as a key coordinator and actor in handling technological hazards and accidents. The detailed analysis of USEPE organizational pattern and operation modes including institutional structure, key functions, means and forces and operation routines is provided. It is argued that the system's logic and flexible organizational framework only to some extent contribute to effective mitigation of the major emergencies and/or disasters. In no less extent it depends on the existing socioeconomic conditions, which have been for a long time unfavorable in Russia and thus seriously constrain the USEPE effectiveness. This provides for ambiguous integral evaluation of the emergency management policy in the 1990s and early 2000s.

Keywords: Emergency policy; Emergency management; Legislative regulation; Institutional framework; USEPE

1. Introduction

As in the rest of the world, the protection of communities and regions against multiple threats including those involving hazardous materials accidents in the former Soviet Union

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for decades was prerogative of the national civil defense. Also like other countries, emergency management policy evolved from this civil defense context to address the broader spectrum of natural and technological hazards, hazardous materials threats, and ultimately the danger of terrorism. This was an organic component of the national defense system and was responsible for protection of people against military threat, primarily hostile nuclear attack. In the tense years of Cold War in the 1950s and 1960s, such an approach had its obvious political grounds. However, even those should have been considered more comprehensively and embedded in broader connotation of national security. As early as in 1956, the Report of the Committee of Three on Non-Military Cooperation in NATO put it:

> Security is today far more than a military matter. The strengthening of political consultations and economic cooperation, the development of resources, progress in education and public understanding all can be important for the protection of the security of a nation or an alliance as the building of a battleship or the equipping of an army [1].

Despite this progressive understanding of both national and international security, this failed to be implemented in practical state policies of all nations including the former Soviet Union for many years. In the 1970s and 1980s the peacetime threats including social conflicts, terrorist attacks, natural and technological disasters increasingly turned into the key problems of national security and public safety that required respective change in policy priorities. Meanwhile, again for almost two decades this change did not happen thus increasing the risk of communities being adversely affected by emergencies and disasters' impact. In addition to this, the former Soviet government officials kept to the existed cover up policy, in particular to natural and technological disasters with 'no victims, no damage' being stereotypic public comment coined each time the information about a major crisis occurrence leaked into media and became known to the public.

At the same time, the scale and severity of such crises were increasing with the pace of accelerating but poorly managed industrialization and urbanization resulted from one-sided economic policy. The most significant was the human and environmental health impact produced, on the one hand, by hazardous industries because of the poor technological and safety management policies. On the other hand, this followed from technological accidents and disasters, especially those involving hazardous substances and with serious environmental implications, which accounted for the bulk of the total number of casualties and economic damage incurred by all kinds of crises in the former Soviet Union in those two decades. In the 1980s alone, this impact affected several million people with more than 150,000 of those injured or killed annually. This number includes more than 65,000 immediately killed because of the industrial accidents and those died prematurely. Economic damage was no less considerable with our assessments showing the total direct and indirect economic losses incurred by the aforementioned combined impact with that of natural disasters inclusive soaring to 12–15% GDP [2].

It was only the great political and economic changes in the former Soviet Union known as *perestroika* and the world worst radiation disaster of Chernobyl in the mid 1980s that marked the beginning of real drifting away from the old 'military' paradigm of national security policy to a more comprehensive one, which seriously considered a previously flip side of a coin, i.e. peacetime conflict and non-conflict crises. Since those times, these issues became an increasingly organic and important component of the national development and

national security policies. This paper contemplates institutional and legislative issues of disaster policy and emergency management in contemporary Russia. Particular emphasis is made on the policy's handling technological hazards including those involving hazardous materials. The development of an understanding of disaster policy in Russia is important and relevant for several reasons. First, because the context of emergency management is civil defense in many countries, the policy challenges confronted in Russia must also be met elsewhere. Second, hazardous materials management is a special case of public policy and one must understand the governmental and policy processes to assess the effectiveness of different approaches to this threat. Finally, emergency managers across many nations — particularly in the West — have expressed frustration that government legislation sometimes makes hazardous materials threats more acute instead of less dangerous. The case history of the Russian experience can inform those in other countries of the issues and the connections between legislation and achieving effective hazardous materials preparedness in local communities.

2. The onset of the national emergency management policy

The radical political change in the former Soviet Union in the second half of the 1980s coincided in time with a set of the major emergencies, disasters and catastrophes with the 1986 Chernobyl radiation and 1988 Armenian earthquake disasters being the most devastating. This specific combination of circumstances facilitated and accelerated drastic changes within the existed national civil defense system.

In 1989, the special governmental regulation established the State Emergency Committee of the Soviet Union. Some a year later, an analogous committee was organized in the Russian Federation as a part of its Council of Ministers (the Government of Russia). Soon this committee moved to the Administration of the President of Russia and changed its name to the State Committee of the Russian Federation for Civil Defense, Emergencies and Natural Disaster Response, or EMERCOM. This was an official recognition of the communities and regions protection in both peacetime and wartime emergencies as a relatively independent and important area of the national policy.

The dissolution of the Soviet Union in December 1991 transformed it into a set of independent states with Russian Federation being the largest in terms of both territory and population, and the most developed country. According to the 1993 Constitution, it consists of two types of entities (*Soubyekti Federatsii*): national and administrative. The national entities include 21 autonomous republics, 10 autonomous districts (*okruga*) and one autonomous region (*oblast*). The administrative entities consist of six territories (*kraia*), 49 regions and two federal cities, Moscow and St. Petersburg.

At the regional level, people elect the assembly with the Governor or the Head of Administration as a chief executive. At the federal level, the President elected by the whole population is the head of the state holding significant powers. He makes the final decision in case of disputes with the federal legislative body (*Federalnoye Sobraniye*) and Government, lays down the guidelines for domestic and foreign policies, including the security and military policy given his holding the post of Supreme Commander of the Armed Forces. The President appoints the Government with the Prime Minister who, however, should be

also approved by the *State Duma*, the lower chamber of the federal legislative body with the *Sovet Federatsii* being its upper chamber.

As to emergency management area, the above mentioned political and administrative transformation left the Russian EMERCOM without its twin of the former Soviet Union. In 1992, the Governmental Regulation no. 261 strengthened the EMERCOM role within the Russian government by vesting on it the responsibility for development and enforcement of the national state system for prevention of and responding to natural and technological emergencies and disasters including those involving hazardous materials. At the same time, the other federal bodies kept the responsibility for the handling the rest kinds of crises including conflicts (see further on). The basic issues of the communities and regions protection and emergency management strategy as a part of the national security policy have been and actually are determined and established by President of Russia and his consultative organ, the Security Council.

In 1994, the federal legislative body passed the Federal Act for Communities and Territories Protection against Natural and Technological Emergencies and Disasters, or 1994 Federal Emergency Act. This manifested the EMERCOM transformation into the Russian Federation Ministry for Civil Defense, Emergencies and Natural Disaster Response (with the same acronym preserved) and the onset of the building of the Unified State System for Emergency Prevention and Elimination of the Russian Federation, or USEPE.

These legislative and organizational changes in the mid-1990s increased the number of the organizations and institutions involved in development and implementation of emergency management policy, and respectively widened its operation coverage. Accordingly, the federal budget expenditures on the USEPE development conspicuously augmented, too. In the fiscal year 1997, these should have exceeded 8000 million rubles or 2.1% of the total budget expenditures leaving alone those for the special government emergency fund.

In more generic sense, the above mentioned changes marked the onset of the Russian state emergency and disaster policy as a specific area of both the national development and national security policies. This was especially noted by the President of Russia in his 1996 annual message of the to the Federal Assembly dedicated to the national defense issues. He particularly distinguished the protection of individual and societal interests in emergencies caused by natural, technological and other hazards as one of the key areas of the national security policy. This should be elaborated and implemented by USEPE with its legislative and institutional framework and development issues considered below in more detail.

3. National emergency legislation: development and change

The radical political and socioeconomic permutations that followed dissolution of the former Soviet Union entailed crucial changes in the Russian legislation, which included the development and enactment of the first federal laws in the civil defense, environmental protection, and emergency and disaster management areas. These in turn constitute the legal foundation of the institutional framework of the national emergency management policy, in particular the building up of the USEPE.

3.1. Basic trends of legislation change

This process manifested two opposite development trends within the national legislation system as a whole and its emergency and disaster segment in particular. One of these involves *diversification* of the legislation. This has been increasingly enriched with the new kinds of laws and regulations, first of all those concerning emergency management policy that until then were lacking. By 2001, the body of emergency and disaster laws in Russia included about 40 federal laws and some 100 federal regulations, and more than 1000 regional acts passed by legislatures of the Russian Federation entities. These leave alone hundreds of orders and regulations issued by a gamut of the federal bodies incorporated in the USEPE [3–5].

Along with diversification, a tendency to *integration* of emergency and disaster acts into a specific branch of the Russian Law has increasingly becoming a characteristic of the federal legislation. Such integration implies, on the one hand, the federal and regional lawgivers seeking for clear-cut systematization and incorporation of the existing acts. On the other hand, it involves harmonization and unification of these acts on a basis of the principles and rules of international law. This is used by the international emergency and disaster related organizations like IAEA, UNDRO, UNEP, WHO, WMO and so forth. Although the former Soviet Union and then Russia joined the world and regional agreements in this field without or with a small lagging after the Western countries, some critical national emergency and disaster laws were issued with a pronounced delay or are still lacking in some important areas.

Added to diversification and integration should be keeping *federalization or centralization* of the Russian emergency legislation. Unlike most of the Western nations where regional (state, province, land, etc.) legislation for decades has been the cornerstone of both development and emergency management policy, the bulk of the Russian Federation entities copy the existing federal emergency and disaster acts and still search for creating these of their own. This happens despite the Russian Constitution providing shared responsibility for emergency management policy of both the federal and regional authorities. This also contrasts with the existing regional legislation for socioeconomic policy, for example, in the field of property relations, privatization of enterprises, taxation, which involves significant local specificity that differs it from the federal laws. Moreover, sometimes (some experts believe that in 10–12%) the regional economic legislation even contradicts these laws, which in 2000–2001 forced the new President of Russia taking tough measures against the selected regional authorities to provide necessary legislation compliance and thus add to the centralization of the whole legislation development.

As to emergency legislation, thus trend partially stems from the objectively higher degree of centralization in emergency management field in comparison with an economic and social policy in general. However, to no less extent such tendency is legacy of the Russian multi-century history and culture including the field of legislation. The eventual implication of this is the regional authorities' lagging substantially behind the federal government in development and enforcement of emergency and disaster laws. Meanwhile, the situation is somewhat different in terms of 'lower' status normative acts (regulations, orders, instructions and so forth).

In addition to the trends mentioned above, worth distinguishing is the *relative increase of the role of mitigation* within the emergency legislation and policy. This implies a gradual

drift from predominantly reactive and adaptive type of crisis management to a more proactive (anticipatory) and flexible one. Such a drift manifests itself in the lawmakers strive for changing the federal budget expenditures proportion between the federal mitigation and response and recovery efforts in favor of the former. In the fiscal years from 1996 and 1999 such a proportion between the earmarked mitigation allocations (including the resources of the special governmental fund for emergency response) and those for recovery and rehabilitation from emergencies and disasters were almost equal. In addition, between 1999 and 2005 the federal government is intended to carry out a comprehensive mitigation program to reduce the risks of natural and technological disasters [6].

However, it is important to note that despite the mentioned important changes in Russia in early 2000s the emergency and disaster legislation, primarily at the federal level, is still tended to orient on preparedness and response rather than prevention and mitigation. The latter issues still have lower priority in legislation and respectively experience shortage of funds. One of the reasons for that is a relatively short time needed to transform the whole national emergency and disaster legislation (and institutional system, too) to provide coverage of every key hazardous sources and agents including hazardous materials, and all stages of an emergency management cycle.

Another reason deals with the actual pressing needs and keeping decision making stereotypes concerning sharing scarce resources for emergency management. The funds needed for coping with the debilitating and devastating effects of emergencies and disasters are solicited more eagerly and in greater volumes than for prevention and mitigation. In particular, in the above cited example of the Russian federal budget resources allocation the proportion between actual expenditures on prevention and mitigation and expenses on recovery and rehabilitation was 1:1.5. Partially this could be explained by the financial managers well-justified rushing to reduce wherever possible the expenditures on prevention. This could well turn out useless if no emergency occurs. At the same time such decisions are forced by a strong public demand from the affected communities to spend more and without delay on their own needs when an emergency and/or disaster really strikes.

3.2. Key directions of legislation development

Substantial changes in the Russian emergency and disaster legislation are under way following two main directions. One of these involves the development of new laws and acts to reduce the risk associated with the new harmful sources and agents including hazardous materials. In addition, to cope up with existing kinds of emergencies and disasters new means and methods of legislative regulation are enforced. Another direction of legislation change implies harmonization and specification of the existing acts. For this developed and adopted are the amendments and comments to the existing laws, regulations and instructions, which provide for better distinguishing of areas of responsibility and coordination between the key bodies and services engaged in emergency management.

In practice both directions of emergency management policy are closely intertwined. This creates more or less holistic legislative framework for prevention of, preparedness and response to and recovery from emergencies and disasters. In Russia, this implies a lawmaker's approach, which presumes the formal relations between community members in emergency constituting a relatively independent special set different from those existed in

non-emergency environment. This logically requires the development of a comprehensive normative act or a compact group thereof, which would serve as an umbrella of all the acts and regulations in force in the field of emergency management. Such a requirement was implemented by enforcement of the above mentioned 1994 Federal Emergency Act, which established and enacted:

- the principles, tasks, functions and key features of organization of the USEPE;
- the responsibilities of the federal, regional and local authorities, special federal and regional emergency services and volunteers in the area of civil protection;
- the rules of public preparedness to emergencies and disasters;
- the procedure of financial and material support to communities and regions protection in emergencies;
- the tasks, functions and liabilities of the state expertise, supervision and control in the area of civil protection.

Given such coverage many experts believe this an umbrella to the existing laws and regulations covering all kinds of emergencies. However, the Federal Emergency Act whatever basic and multifaceted in fact is not fully comprehensive and even less exhaustive. It regulates protection of people and facilities against natural and technological hazards including those involving hazardous materials, but does not consider conflict type emergencies (mass disturbances, riots, local and regional wars). These are or should be covered by the other acts. This could hardly be a surprise given even the best 'umbrella law' is insufficient for building up an integrated *system* of laws, which regulate legal relationships in emergency management area. To create such a system one needs a 'package' of interrelated acts that provide regulation for management of both specific functions of communities' and regions' protection in emergencies, and specific types of emergencies.

3.3. Typology of emergency and disaster legislation

The aforementioned law package should represent either a respective code or some form of incorporation of existing acts, which is still missing in Russia. This precipitates the persistence of a piecemeal and fragmented rather than integrated national emergency and disaster legislation. At the same time, the nation is well on the way to bridge the gap and in the foreseeable future can match the two basic sets of existing emergency acts. These could be conditionally labeled as systems (integrated) and specific (particular) acts. While the former cover the whole gamut of communities and regions protection functions against any threat and in any type of emergency and/or disaster, the specific acts regulate either a particular or the whole set of emergency management functions in a specific type of crises.

Before proceeding with the description of both types of acts, worth reiterating is that whatever useful for research and better understanding of the spectrum of existing emergency legislation in Russia such delineation is to a great extent conditional. In practice, many of these acts marry both emergency-specific and function-specific characteristics, which cover certain types of emergencies and/or disasters, and emergency service functions.

Integrated Acts provide the basic conceptual framework, principles, goals and tasks of the national emergency management policy in Russia. These include about 40 federal laws from which we would mention just a few the most important. First of all, the Constitution of

the Russian Federation adopted in 1993. Its specific paragraphs establish the citizen rights for life, health and property with the protection of these being the key objective of the state emergency and disaster policy. Notwithstanding, the Constitution provides for certain restriction of these rights and freedoms of people to ensure their safety in crises when the President of Russia declares the state of emergency.

In addition to that, the 1992 Security Act provides formulation of the basic concepts associated with the mission and goals of emergency management including 'security', 'safety', 'security and safety system'. It also establishes the principles, main components and functions of a security and safety system in emergencies. Paragraph 10 of this act distinguishes the powers of the federal legislative, executive and judicial bodies within the national security system. While the similar distinction between the federal and regional authorities is also mentioned in this act it is more clearly formulated in the Constitution of the Russian Federation. An inventory of the basic forces and means to ensure the state security and safety policy implementation is specified in Paragraph 12 of the Security Act later on supplemented by the subsequent decrees and regulations by the President and Government of Russia, respectively.

The earlier mentioned Federal Emergency Act serves as a focus of integrated acts that concern non-conflict peacetime emergencies. Adopted in 1994 it was supplemented and specified in 1995–1998 by the series of governmental regulations on classification of natural and technological emergencies and disasters, communities preparedness to emergencies and disasters, tasks, functions and organization structure means of the USEPE system, its forces and, emergency information exchange and some others. As to conflict type of emergencies, disasters and crises these are beyond the scope of this paper and are not considered. (Those interested are recommended to see [7].) Here, we would only mention these are regulated by the other federal laws enforced by respective state security institutions including the Ministry of the Internal Affairs, the Ministry of Defense, the Federal Security Service, the Federal Frontier Service and some others.

To a certain extent such a legislator's approach has its own logic. This presumes the Federal Emergency Act should supplement and specify the more generic Security Act with respect to natural and technological disasters including accidents involving hazardous materials with the Constitution left alone. Meanwhile, such an approach restrains and debilitates the integration function of the Federal Emergency Act and moves it closer to a specific act. Even more important is that the scope and comprehensiveness of the USEPE are restricted although the intricate logic and title of this institutional system require comprehensiveness, which implies communities' and regions' protection against *all* kinds of threats.

These shortcomings of the Russian emergency and disaster legislation flow from the conceptual interpretation that focuses on the type of hazards rather than causes and effects produced on communities and environment, and communities' ways of response to such impact. Such a conceptualization was extensively and rightly criticized in the last 10–15 years by international scholars, who accentuated the need to use social and sociological criteria. (For review see [8].) What are even more important are the practical implications of all-hazard approach for emergency management policy. For instance, the US and Canada use it as the most applicable and effective tool of change of the existing national emergency legislation and management systems.

Specific Acts make another set within the Russian emergency and disaster legislation. These may be subdivided into two groups: emergency/disaster-specific laws and regulations, which cover particular types of emergencies, and emergency function or/and service-specific laws and regulations, which address particular emergency management function or/and service activities.

Within the first group of acts particularly distinguished could be the federal laws regulating the risks associated with hazardous materials accidents. For instance, as to hazardous chemicals and on-site oil spills one should immediately cite the 1997 Industrial Safety of Hazardous Production Facilities Act, a Russian analog of the 1996 Seveso II Directive in EC countries. The 1991 Environmental Protection Act covers handling of oil spills and other hazardous leakages outside the plants. Federal legislation for radiation hazards is provided by the acts on social protection of the people affected by the South Urals and Chernobyl radiation disasters (as amended in 1999), or the 1995 laws regulating the use of atomic energy and provision of radiation safety for communities.

Within the second group of acts one could distinguish those regulating particular emergency management functions and those for specific services. Among the latter worth mentioning are the 1991 Militia (Police) Act as amended in 1993–1996, 1994 Fire Safety Act, 1994 Emergency and Rescue Service and Rights of a Rescuer Act, which cover the whole gamut of activities of respective services carried out to prevent and cope up with the emergencies including handling accidents, which involve hazardous materials. Numerous presidential decrees and governmental regulations supplement these federal acts. As to the acts, which regulate particular emergency management functions these are described in the next section.

3.4. Specific acts regulating prevention and mitigation of emergencies and disasters

Almost every integrated and specific act contains multiple paragraphs and sections covering emergency prevention and mitigation. These provide for development and implementation of measures of early detection, warning and risk reduction of the threats to human and environmental health, social and economic welfare. In connotation of the hazardous facilities such measures imply formal procedures of expertise of the project drafts and audit of the actual activities to exclude or stop those, which are considered unacceptable by the safety (risk) criteria. In 1999, the expertise of the State Environmental Protection Committee alone filtered almost 100 impact statements concerning hazardous federal enterprises [3]. The Russian Law also prescribes preventive measures to ensure safety carried out during routine monitoring, control and supervision functions provided by responsible state, public and private organizations.

However, the scope and depth of existing set of respective emergency management acts could hardly be considered exhaustive. The bulk of these acts involve no more than a general list of requirements. These, too often do not provide a specific mechanism of respective sanctions for non-compliance. In addition, the standards that should serve as a main calibration instrument for specialists have been and are often changed, sometimes to loosen them in order to decrease artificially the severity of an emergency as officially declared to the public. This helps to calm the initial reaction of the concerned people and then avoid or cushion the responsible agencies' liability. For example, this happened more than once

within the last 15 years with the maximum permissible concentration of nitrates in food products and radionucleides in the milk that have been used as safety standards in mass poisonings and radiation emergencies [9].

Industrial personnel safety acts take a special place within the legislation to prevent and mitigate technological emergencies including those involving hazardous materials. In the former Soviet Union and contemporary Russia these are known as Fundamentals of Labor Security Law of the Russian Federation (as amended in 1993). From our personal perspective, its basic concept of "labor security" is linguistically incorrect and misleading with the safety measures specified mostly a posteriori and technical means and methods of personnel protection added by compensation for post-impact health effect. Meanwhile, preventive and mitigation actions using information intensive technologies and flexible management organization are only slightly touched by the Russian Law.

Within emergency prevention and mitigation-concerned laws and regulations the land use planning acts, construction standards and operation licenses play no less important role. Sanitary and environmental constraints on designing and building within the settlements prohibit the construction of hazardous facilities in a dangerous proximity to residential districts and force customers to make the buffer sanitary and protection belts around such facilities. For instance, such restrictions along with the operation license requirements are established in the 1999 Sanitary and Epidemiological Welfare of People Act, the 1991 Environmental Protection Act, the 1995 Environmental Impact Assessment Act as well as in construction standards developed and enforced by respective construction departments of Russia. However, the discharge of phenol effluents into the river and poisoning of the potable water sources of more than 1 million inhabitants of Ufa city in 1989 and radiation accident at the chemical plant in the Tomsk region in 1993 reveal that this does not always guarantee actual safety [10].

Safety reports for the hazardous facilities is one more normative document used to prevent or reduce the damage associated with technological accidents. Well known and used for more than 15 years in the US and Western Europe, however, this safety management tool is relatively new in Russia. Given the long-term underestimation of the safety issues in the former Soviet Union in contemporary Russia it is hardly a surprise that the first governmental regulation demanding the bulk of industrial facilities to declare and prove its safety status in a special document was passed as late as in 1995. Two years this requirement was coined in the Industrial Safety of Hazardous Production Facilities Act promoted by EMERCOM and the Federal Mining and Industrial Supervision of Russia (*Gosgortechnadzor*). The latter agency was designated a key actor to make up an inventory of hazardous facilities, develop and control the implementation procedure of safety reporting of industrial installations involved.

According to the law, such installations with the ratio between actual and qualifying quantities of hazardous substances involved less than two should have developed safety reports by 2000, those with the ratio between 2 and 10 by 2001 while the facilities with this ratio exceeding 10 should finish their safety reports by 2002 [11]. However, only one-fifth of enterprises using hazardous materials, which ought to prepare safety reports and provide those to *Gosgortechnadzor* in 1999 actually did this thus demonstrating low compliance level [3].

Almost every specific act mentioned above also contains paragraphs and sections concerning emergency preparedness. Contingency planning, training and upgrading of emergency workers (fire, militia, rescue, medical care and other personnel), public information

and training, funds raising, reserves accumulation and resource mobilization constitute the basics of such activities prescribed by respective acts. For example, the 1992 State Reserves Development Act of the Russian Federation establish the procedure of accumulating the state emergency material and technical reserves to cope up with natural and technological disasters including those involving hazardous materials.

As a rule, the Russian Law distinguishes, albeit not always consistently and completely, the responsibilities and functions of respective authorities and public administration bodies involved in emergency management. The 1994 Federal Emergency and Rescue Service and Rescuer Rights Act is a notable exception in this respect providing regulation of emergency personnel training. Meanwhile, specific requirements for and the very procedures of planning, personnel teaching and training being described in detail in numerous orders and manuals of respective federal departments. However, such orders, instructions and manuals are insufficient to cope up with the crisis if respective specific acts (laws) or special paragraphs, which regulate preparedness are lacking. This especially concerns interaction between and coordination of the responsible state departments and emergency services.

Among the aforementioned missing laws are the federal acts for chemical safety, transportation of toxic and highly hazardous materials and some others. Some of these were developed long ago but still have been not adopted and enforced, or have been adopted quite recently and applied on a limited scale, while the others have been not even ear-marked by the legislators as projected for the nearest future.

3.5. Specific acts regulating preparedness, response to and recovery from emergencies and disasters

The specific acts existing in Russia include a wide set of provisions on preparedness, response to and recovery from an emergency and/or disaster. These imply both legal sanctions and motivation for taking in-advance measures to withstand or reduce the severity of the impact on communities and environment, and trans- and post-crisis elimination or alleviation of immediate and remote consequences of such impact. These include: emergency planning, search and rescue operations, trans-emergency and post-emergency evacuation of, medical care support, relief and compensation to the affected people, rehabilitation and reconstruction of destroyed facilities and buildings.

In the former Soviet Union the respective federal laws were lacking till the late 1980s and such activities were carried out within the legal framework of governmental regulations alone. In 1987, the Enterprise Act was enforced to compel the industries and facilities to compensate the damage incurred as a result of non-compliance to existed standards. This act also provided for payments of fines to the responsible environmental supervision agencies. These sanctions have been kept in the Russian federal law, in particular, 1991 Environmental Protection Act as amended, 1992 Consumer Rights Protection Act and 1995 Environmental Impact Assessment Act. However, given the negligible fine tariffs and the bulk of enterprises being on the edge of bankruptcy in conditions of the lasting economic crisis in the 1990s, these sanctions turned out to be much less efficient than expected by the lawmakers.

In addition, worth particular the unique role that insurance legislation played in both the former Soviet Union and contemporary Russia. As known, in many countries of the West this legislation is extensive and comprehensive providing expected loss reduction at every

management stage, from prevention to recovery, and is not constrained by compensations to the victims. Moreover, it is primarily mitigation-focused that stimulates the insured keeping within established standards and recommendations to provide personal and family safety and continuity of his (her) business.

Meanwhile, in the former Soviet Union insurance was rather a mix of preparedness and recovery measure reduced to routine compensation to the victims with the payment procedure provided in a very specific way, too. In conditions of absolute state ownership on enterprises the same monopoly existed in the area of life and property insurance. The State Insurance Company (Gosstrakh) as a unique insurance agency within a system of compulsory and centralized insurance was empowered to collect insurance premiums from all Soviet citizens and enterprises. Part of the collected premiums was transferred to a special reserve fund, which was used to pay to those injured in emergencies and disasters and the families of those killed. Actually such payments were allowances for the loss of breadwinner, permanent disability and so on rather than real insurance obligations. Compensations could somewhat alleviate the damage incurred by emergencies and/or disasters but the payment procedure and amount of such allowances were not specified in the regulations issued by the central government with national and republican insurance laws. As a result, the real compensations were negligible that could not but impede the efficiency of the existed insurance system and predetermined its low priority within national emergency management policy.

In contemporary Russia, the situation has somewhat improved with the federal laws crucial for insurance development being adopted and enforced in the 1990s. These include primarily the 1991 Medical Insurance of the Russian Federation Citizens Act and 1992 Insurance Act (as amended in 1999). Some insurance related norms were also established in Environment Protection Act and legislation on urgent response services (police, fire, rescue, medical care and some others). In particular, these provide for lump-sum allowance compensation to the injured officer disabled with further service ruled out or the family if (s)he is killed in search and rescue action. The amount of allowance to the family of those killed is established to 25-month salary per each family member with allowances to those disabled ranging between 25 and 75-month salary equivalent depending on injure severity [12]. On some exceptional occasions, such as sub ‘Kursk’ tragedy in 2000 showed, the President of Russia can issue an order of much more generous lump-sum compensations equal to 120-month salary.

However, we believe the insurance market and national insurance policy in Russia being still in its infancy and in respect to emergency management keeping its focus on compensation. Despite the above mentioned positive changes in the 1990s, a number of important specific acts capable to regulate property and other liabilities of individuals and organizations in emergencies and disasters are still missing. These include the damage risk insurance issues, those of insurance of the hazardous facilities liability for risk associated with the possible health effect of a hazardous emission or discharge in accident, and some others. As known, such insurance legislation has been for a long time and widely used in the world most developed countries. In this context, the 1992 Insurance Act (as amended in 1999) interpreted above as an integrated one, actually and in the foreseeable should rather be reconsidered as a specific act.

Within the given group of emergency and disaster acts worth distinguishing are those, which regulate the status of and regime of activities within the specific emergency and/or

disaster areas. In Russia, about a few dozens of such areas exist for many years leaving alone a substantial greater number of 'short-living' crisis zones. However, a federal 'frame' law, which could provide clear-cut criteria for distinguishing and establishing the status of such type of areas, is missing so far. Even the integrated Federal Emergency Act, which provides the definition of these areas, only mentions a procedure of establishing their boundaries by field emergency coordinators. In this respect, the Environmental Protection Act, which determines the status of and the schedule of activities within the so-called environmental emergency and disaster areas could serve as a unique exception.

Such law could also serve as a 'legislative umbrella' for a mosaic of existing acts each covering specific case, most of these associated with radiation disaster areas. These are a legacy of both the South Urals major accidents in 1957 and 1961, nuclear testing near Semipalatinsk in Kazakhstan in 1950s and 1960s and Chernobyl disaster in 1986. Such federal laws were eventually developed and enforced in Russia with a considerable delay, only in the 1990s. However, analogous acts that would cover other areas in South Siberia and Volga region affected by multiyear considerable environmental contamination and degradation are missing, too. Instead of these the regional executive bodies and local administrations have to use the general clauses of the national Environmental Protection Act mentioned above or specific government regulations.

The last but not least, worth special mentioning is the emergency and disaster legislation, which regulates relief aid to the affected communities, in particular to the refugees and post-impact measures to prevent or mitigate the future disasters. In Russia, the federal emergency and disaster relief laws and refugees acts have not yet been developed and enforced. Meanwhile, the official records alone cite more than 700,000 refugees living in Russia in 1998. The situation looks much better in respect to the federal laws, which regulate investigation of the pre-conditions and causes of the accidents, emergencies and disasters. Some of these acts are effective since the times of the former Soviet Union although with some changes in titles and amendments. In this context, one could mention the respective clauses of the 1996 Criminal Code of Russia, the 1984 Code of Administrative Offenses (the Tort Law) as amended in 1997–1999 and some others. Specific paragraphs of these acts along with numerous regulations and instructions of the responsible federal ministries address the issues of carelessness, non-compliance to industrial and technological safety rules and other violations of the law, which lead to emergencies and disasters with victims as well as sanctions for these delinquencies.

4. Organization of the national emergency management: key functions and features

As an organizational system, the USEPE provides communities' and the nation prevention of, preparedness and response to and recovery from emergencies and disasters provoked by different hazards including those involving hazardous materials. This predetermines two basic requirements to the USEPE organization and composition. First, full coverage of the operation area, functions and authority and decision making levels involved in emergency policy. Second, system's hierarchy which should combine the centralized coordination of contingency and operation planning with the from-bottom-to-top efforts to implement these plans and grass-root activities to respond to emergencies and disasters.

4.1. The USEPE at large

In accordance with the aforementioned requirements, USEPE is organized along the spatial (geographical) and functional criteria and includes two sets of subsystems. These entail spatial (territorial) and functional management subsystems.

The *spatial or territorial subsystems* are organized by the executive authorities of the Russian regions (the entities of the Russian Federation and local authorities) along the existing administrative and spatial division of the national territory established by the Constitution of the Russian Federation. These subsystems include: management bodies, public administration, forces and means of the executive authorities of the Russian Federation entities, local authorities and organizations responsible for communities and regions protection against natural and technological hazards. Thus USEPE incorporate more than 5000 spatial subsystems including those in 89 entities (members) of the Russian Federation, over 1000 in the urbanized areas and big cities and more than 2200 in towns, hamlets and villages in the rural areas. By 2001, these covered 88 entities (except Chechen Republic) with 576 regional emergency commissions and committees being reorganized.

The *functional subsystems* are organized by the federal executive authorities and consist of the federal government, forces and means of the federal ministries and departments responsible for emergency prevention and response in the areas and industries of their competence and prerogative. We estimate that by 2001 some 30 subsystems carrying out almost 20 various functions were fully established and operated by some 40 federal executive bodies (ministries, state committees, federal services and supervisions). Both the functional subsystems and functions being implemented may be united into the following three main types: monitoring (observation and control), operation management (emergency preparedness, response and recovery); logistics support (material, technical, financial, etc.). Among these the operation emergency management functions dominate in terms of the number of functions carried out followed by monitoring and control, which conspicuously prevail over logistics support.

Such composition of and functions priorities within the USEPE comply with the adaptive and reactive type of emergency management policy, which primarily has been focused on response and recovery measures. At the initial stage of this policy development it was quite natural given that in the former Soviet Union the federal and regional urgent response services were lacking and for decades were replaced by the army and local police and fire units. However, in recent years the situation has been changing towards a more pronounced accent on anticipatory and flexible organization and operation of the USEPE.

In this respect worth special noting is the development and inaction in 1999 of the Federal Target Program for Risk Reduction and Mitigation of Natural and Technological Disasters in the Russian Federation by 2005 [6]. In the area of technological disasters mitigation including those involving hazardous materials the program implies development and installment of the federal and regional systems for monitoring and forecasting of possible accidents risk, development and enforcement of acceptable risk standards and norms compatible with those enforced in the world most developed countries. It also involves economic measures including insurance mechanism and training of both emergency units and community members providing for reduction of technological risk to the acceptable level.

In 1999 and 2000 efforts were invested into respective R&D activities while since 2001 these should be increasingly focused on implementation of those in practical emergency management. It is expected that by 2005 such mitigation measures would help to reduce the potential economic damage by 40–50% in the most vulnerable areas in Russia prone to technological risks including those associated with hazardous emissions, discharges and spills. These measures should also provide for cutting by third the number of those who might be killed in technological accidents with many of these totally prevented. However, implications of the economic crisis of the 1990s and budget constrains flowing from indebtedness to the West seriously complicated the implementation of the above mentioned goals of the program. Some estimates show that in 1999–2000 the real allocations were by 60% less than appropriations endorsed in the federal budget by the State Duma.

Whatever regretful, this should not blunt the national emergency management policy increasingly shifting from response-oriented to mitigation strategy and some significant results obtained on this way. As to handling hazardous materials, particularly emphasized should be reorganization of the National System for Surveillance and Laboratory Control of Hazardous Substances in 1999, which provides for bringing together and mutual reinforcement of both spatial and functional subsystems capacity for monitoring and forecasting of chemical, radioactive and some other risks. Currently, this system incorporates almost 7000 organizations with those from the federal Ministry of Health and Ministry of Agriculture amounting to 60% and the rest 40% coming mostly from Hydrological and Meteorological Service and Environmental Protection Office of the Natural Resources Ministry of Russia [3].

4.2. The USEPE management levels: composition and functions

The USEPE involves five basic levels corresponding to those of making and implementing decisions with a special respect to the severity of emergencies sand disasters. These include the followings:

- organizational level, which corresponds to an enterprise, institution, organization, etc.;
- local level, which corresponds to a district of a city, or a town and city as such;
- regional level, which corresponds to an entity of the Russian Federation;
- macro-regional level, which corresponds to the area of two neighboring entities of the Russian Federation;
- federal level, which corresponds to the area of more than two entities of the Russian Federation or national territory as a whole.

If an emergency or disaster strikes the area or facility owned by the federal government, for example, the nuclear power or chemical plants, the boundary coastal seawaters and so forth, the respective decisions are the competence of the federal and to less extent regional levels. Each of the above mentioned USEPE level has a similar composition of operation and control organs. These include: coordination bodies, permanent operation and control bodies especially authorized to provide communities and regions protection in emergencies, everyday operation and control bodies; and forces and means, financial, material and technical reserves, communication, warning and information support systems [13].

The *coordination bodies* conduct strategic and tactical planning primarily associated with prevention and response preparedness. This involves the development of specific federal

and regional emergency programs and plans. These bodies also provide management of the implementation of these programs bearing responsibility for preparedness to insure the availability, reliability and effectiveness of the departmental (industrial) and regional warning and response systems, and coordinating the recovery activities. Between 1995 and 2000, developed and implemented at various stages were some a dozen of federal and regional programs for prevention and mitigation of the major emergencies and disasters alone. This includes the aforementioned Federal Target Program for Risk Reduction and Mitigation of Natural and Technological Disasters in the Russian Federation by 2001 serving as both a cornerstone and organizational umbrella for the other related federal programs.

At the federal level the USEPE coordinating bodies include, first, the Interdepartmental Commission for Emergency Prevention and Response composed of the deputy ministers and chairmen of the federal ministries and state committees associated with emergency management issues, and headed by the Prime Minister. According to the Russian Law, he is the Chief of the Civil Defense of the Russian Federation, which in everyday routine is managed by the Ministry for Civil Defense, Emergencies and Natural Disaster Response (EMERCOM). The head of EMERCOM is the federal minister, the Deputy Chief of the Civil Defense and Commander-in-Chief of the Civil Defense troops.

EMERCOM and Emergency Commissions of these ministries and state committees are the other federal coordinating bodies. EMERCOM is the key federal governmental body responsible for coordination of civil emergency planning, search and rescue and evacuation while major natural and technological emergencies and disasters. Meanwhile, the other emergency management functions: fire, medical care, transportation, public order support and some others carried out during such major non-routine occasions are the responsibility of the other federal ministries. These include the Ministry of Interior, the Ministry of Health, the Ministry of Transportation, Ministry of Communication and some other ministries, state committees, federal services which in total amount to circa 30.

At the macro-regional level the USEPE coordinating bodies are represented by the EMERCOM seven regional centers. At the regional, local and organizational levels these bodies involve Emergency Commissions or Emergency Committees of executive authorities of the entities of the Russian Federation, local authorities and organizations, respectively.

The USEPE *permanent operation and control bodies* specially authorized to provide communities and regions protection in emergencies carry out the functions of operation planning and management by preparing contingency and operation plans. They also exercise administration and control of the plans implementation, in particular over emergency preparedness and response. At the federal and macro-regional levels EMERCOM and its seven regional centers are the main state bodies responsible for that. At the regional and local levels, permanent operation and control are provided by the Civil Defense and Emergency Staffs, which are increasingly transformed into Emergency Offices within the earlier mentioned emergency commissions of the regional and local executive authorities. At the organizational level these functions are exercised by the Civil Defense and Emergency Management Departments or especially authorized persons in respective institutions or enterprises.

The USEPE *everyday operation and control bodies* provide monitoring and information support to the responsible agencies throughout the whole emergency management cycle and operational response. These bodies include the EMERCOM central (federal) Crisis

Management Center, the Operation On-Duty Services of the EMERCOM regional centers and those of the regional permanent Emergency Commissions at the governments of the Russian Federation entities. These services are increasingly transformed into Crisis Management Centers, too. As to the specific ministries of the Russian Federation entities also at the regional level, these as the enterprises and institutions at organizational level use On-Duty and Dispatch Services. Meanwhile, at the local level everyday operation and control is conducted by the local Operation On-Duty Services, which in the cities are increasingly transformed into the Unified On-Duty and Dispatch Services. All transformations mentioned above should be finished by 2005 [3].

Within the USEPE functional subsystems discussed above permanent operation and control bodies carry the main burden of both development and implementation of emergency prevention, mitigation and alleviation measures. Among these the salient role of EMERCOM should be especially emphasized as a key coordinator in major technological emergencies and disasters including those involving hazardous materials. As to the minor accidents that constitute the bulk of officially registered emergencies these are the responsibility of the local and regional police, emergency medical and technical support services. Given substantial forces and means concentrated at the federal level the EMERCOM headquarters should be considered not only as a key emergency planning and coordinating agency but also an important response actor. While the bulk of the search and rescue units are in the regions and operated by EMERCOM regional centers and regional and local authorities, these units not too strong enough and are dispersed over the huge territory of Russia to provide efficient response independently, i.e. without help from the federal level. The problem is further complicated by the incompleteness of the USEPE functional subsystems development by early 2000s and shortage of trained emergency personnel and resources at the regional and local levels of the USEPE spatial subsystems.

4.3. Means and forces, and operation routine of USEPE

All emergency operation and control organs act as command and control centers at each of the USEPE decision-making levels and manage respective forces and means, which execute their orders and directives. In compliance with the two set of functions provided by them such *forces and means* could be subdivided into those conducting everyday monitoring and operation control and those involved in emergency response actions.

At the federal level the former group of forces and means incorporate primarily the services and institutions (organizations) at the federal ministries and state committees responsible for and conducting environmental and medical monitoring, screening and control of the hazardous facilities and adjacent areas, risk assessment for human health both at these facilities, neighboring and remote communities. In addition, the USEPE forces and means for monitoring and operation control involve interdepartmental organizations and services that comprise those not the part of the federal government. For instance, one may cite the above mentioned National System for Surveillance and Laboratory Control of Hazardous Substances, which includes the Russian Academy of Science research centers. In recent years, there has been a conspicuous trend to consolidate these forces and means under the EMERCOM auspices with this hazardous substances surveillance and control system as a case of the task accomplished.

The latter group of forces and means for major emergency response comprise fire, search and rescue, emergency and rescue, emergency technical support and emergency recovery units of the federal executive authorities. In the area of technological emergencies including those with hazardous materials those are emergency technical centers of the Ministry for Nuclear Energy, search and emergency rescue units of the Ministry of Transportation and some others. As mentioned above, organic to the forces and means for emergency response are also fire, emergency technical support, emergency medical care, militia (police), civil defense units of the regional and local (including municipal) authorities as well as construction and transportation companies and so on. Within all these permanent preparedness forces at the federal level are the key emergency management actor. These comprise Crisis Operation Centers and operation units of the 13 federal ministries and services with those of the Ministry of Internal Affairs, Ministry of Health and EMERCOM making the bulk of total response strength.

Depending on the situation, USEPE functions at any of the three basic *operation routines*, everyday (ordinary), alert (increased readiness) or emergency (extraordinary) routine. The everyday routine implies the established day-to-day way of living of communities in peacetime with the minor incidents and disturbances not breaking and rupturing communications and fabric of a community. Environmental monitoring and monitoring of the hazardous facilities, contingency planning, setting up and supplementing of emergency reserve funds, emergency personnel training and public information support are the key measures carried out within this kind of operation routine. The alert (increased readiness) routine presumes the USEPE subsystems and elements functioning in the conditions of perceived or actual worsening of radiation, chemical and other settings, which serves as forerunner of a forthcoming emergency and/or disaster. The extraordinary routine implies the USEPE components operating in conditions of an actual emergency and striving for alleviation and elimination of its social and environmental effects.

The procedure of sequential involvement of the USEPE forces and means during response to and immediate recovery from an emergency or disaster is much similar to that in many developed countries of the world. It corresponds with the requirement of enough sufficiency and maximum utilization of the available resources for saving people, rescuing material values and protecting environment. This presumes the forces and means incrementally involved in response and then recovery activities in the pace of increasing risk or severity of socioeconomic and environmental damage. The more the situation in the emergency area turns to the worse and transforms into a major disaster or a catastrophe the higher are the USEPE level and its capabilities involved.

The organization of recovery works has been traditionally the prerogative of the local authorities and organizations. These use the available forces and means located in the affected or adjacent areas, primarily fire, police, medical care and other emergency services. If the severity of impact and damage are beyond their capabilities local authorities apply for external help. More often this appeal goes to the federal government rather than to the authorities of the neighboring and more distant regions of Russia. The reason for this is the ‘centrality syndrome’ of the local and regional administrators preserved as a former Soviet Union legacy and, more important, the keeping concentration of economic and administrative powers in the hands of the federal authorities.

Meanwhile, during emergency response mayors and governors of the affected regions call for the forces and means of the regional EMERCOM operation centers. If the conditions are too complicated to be handled independently such a center immediately applies for help to the EMERCOM Central Rescue Unit in Moscow region and the civil defense and rescue units of the neighboring regions. In case of a macro-regional or national emergency upon the request of the EMERCOM minister and/or in view of an utmost need for imposing the state of emergency, the President of the Russian Federation may take a decision to use the army units and other units and troops to cope up with an emergency as soon and efficient as possible.

5. The efficiency of emergency management policy

The key features of national emergency and disaster legislation and organization discussed above provide a generic picture of the emergency management policy in Russia, USEPE in particular. However, the system's logic and organizational framework only to some extent predetermines its real capability to effectively mitigate major emergencies and/or disasters. Given the inseparable interrelationship between the political and economic development settings on one hand and, on the other hand, emergency and disaster policy, the latter's efficiency as a whole and USEPE, in particular is to no less extent dependent on the socioeconomic conditions. These result from the past and present development policy and are influenced by geographical peculiarities and those of the social space and time of a specific emergency and concrete coping decisions made.

In this connotation, the evaluation of the emergency and disaster legislation and organizational system existing in Russia, and its operation environment in the 1990s would be somewhat ambiguous. The relatively prompt organization and progressive development of this system built upon federal emergency legislation including the 1994 Emergency Protection Act and the new federal 1997 Industrial Safety of Hazardous Production Facilities Act was obviously a substantial achievement. The other merits involve the coverage of all main functions and levels of authorities, and compatibility of the USEPE organizational pattern with a number of important peculiarities of the Russian environment. In particular, it implies the system's bias towards mitigation of and response to the major technological accidents in the big cities and industrial centers, which prevail in both the total number and in terms of social and environmental damage within the non-conflict type emergencies.

All these contributed to a success of the prevention, preparedness and response operations in almost the decade of the USEPE functioning started in 1992. Among these prevention should be especially stressed. Suffice it to mention the near miss case in February 2001 occurred at the chemical plant in the city of Zelenogorsk close to the regional administrative center of Krasnoyarsk in Siberia. The local electric grid administration supported by the regional governor unplugged electricity from the plant suspended for bankruptcy. However, this still stored 140 tonnes of extremely toxic liquefied carbon sulfides that could explode and discharge poisonous vapor cloud affecting 70,000 of the city dwellers. To avoid the inevitable disaster these should be urgently evacuated, which in turn involve considerable costs and efforts. Fortunately, the local Civil Defense and Emergency Staff managed to make an urgent phone call to responsible energy officials to demand restoring the electricity supply

back again and within less than 3 h it was done. The disaster was prevented with human health and lives saved and emergency funds untouched [14].

As to response operations, the number of rescued by search and rescue units alone increased by more than an order of magnitude from 1500 in 1992 to more than 18,000 in 1999. This leaves alone circa 50,000 rescued annually by local and regional fire units, which also save commodities worth more than US$ 400 million annually [3]. Along with these units those of emergency medical and municipal technical support and maintenance services, and police provided the main contribution to communities and regions protection against technological accidents. For decades these services have been used almost exclusively in the framework of their own organizational systems and actually are the crucial part of the USEPE system at the local and often at a regional level.

At the same time, the analysis of the USEPE efficiency reveals its shortcomings and certain non-compliance with actual and perspective needs of communities' and regions' protection in emergencies. These primarily stem from the system's not conforming the comprehensiveness criterion and being a specific rather than an integrated organizational system. Another problem involves the system's bias on response and primary recovery rather than mitigation of emergencies and disasters inherited from the past decades, although from recently the situation has been changing to the better as mentioned above. In addition, preparing and auditing of safety reports and industrial risks insurance systems along with the other economic tools providing for efficient mitigation of technological and other emergencies and disasters are in their cradle. This could not but increase the burden on the federal, regional and municipal budgets given the increasing damage incurred by technological accidents including those involving hazardous materials and make respective industries and businesses poorly motivated to undertake mitigation measures themselves.

The above mentioned shortcomings are further aggravated by the current state budget constraints and long-term consequences of the lasting and deep socioeconomic crisis in Russia in the 1990s. This resulted in cutting emergency funds and material supplies for communities' protection against technological hazards last decade. Some experts believe the expenditures on civil emergency management policy (as a whole) should amount to 140–150 billion rubles in 2000 prices (or US$ 4–5 billion) annually. However, in 1999 actually allocations from the federal and regional consolidated budget were less than 7 billion rubles or only 4.8%. Worth special noting is that from the federal emergency reserve budget of 2 billion rubles all money went on disaster response. No funds were available for emergency prevention and mitigation from that level with respective financing all covered by the entities of the Russian Federation or regions of Russia [3,6].

This generic picture masks even much more serious problems existing in the budget-deficit regions, i.e. those subsidized by the federal government, and particular areas of civil emergency protection. Suffice it to note that in 1999 allocations for development of the USEPE automated information and management system, a key component of timely preparedness and response to accidents involving hazardous materials and other 'fast-burning' crises amounted to 3.1 million rubles or 35% of the needed funds alone [3].

All these and financial constrains foremost predetermine the efficiency of the national emergency management policy and its preparedness component in particular being far from those wished. For instance, the people from 43 regions or 48.3% of all entities of the Russian Federation lack individual protection means like gas masks, respirators and so forth while

of those living within the impact area of chemical and radiation facilities 35 and 78%, respectively, are not provided with special protection kits. The above mentioned National System for Surveillance and Laboratory Control of Hazardous Substances is in shortage of one third of the needed equipment, as the least. Early warning systems provide 30 min notification for radiation and chemical emergencies to 80 and 53% of the communities living within the impact area of respective hazardous facilities with the rest 20 and 47% lacking such a warning [3].

6. Conclusion

The 10-year experience of the Russian emergency management policy reveals ambiguity of its development trends. In legislative area, worth positive stressing is the increasing number of all-level authorities' acts, which now cover a wide range of critical issues of emergency policy and juridical relationships between respective management actors. However, the scope and quality of the existing legislation are still far from meeting all basic needs of civil emergency management in Russia.

This calls for a more thorough and critical analysis of the past efforts made on a national level in this area. In addition, worth more intensive and comprehensive study, is the international legislative experience of coping with major emergencies and disasters, particularly the accidents involving hazardous materials. As the historic example of Seveso I Directive followed then by Seveso II Directive shows, efficient legislation development and enforcement efforts can reduce the risk of such accidents by 7–10 times within less than a decade.

In a broader perspective of legislative and institutional realms of emergency management policy and, more generic, the national security system, this implies a future development strategy qualitatively new for Russia. Whatever its label with that of internationally accepted 'sustainable development' applicable but at no end the unique one, this new strategy implies all-risk management at the core. It should provide for actual and perceived hazards' loss and damage reduction presuming that the best available and efficient measures would mitigate these but would never bring risk down to zero.

In addition, such policy measures should be oriented on achievable and socially acceptable value of risk, which vary within the vast territory of the Russian Federation. From its 89 entities 27 or 30.3% of their total number include the areas stuffed with chemical, radiation and other high-risk facilities. Within each of these areas more than 700,000 people or 0.5% of the total population of Russia live. EMERCOM considers these as Class I or the most hazardous regions. Respectively, 33 entities of the Russian Federation or 37.1% are Class II or hazardous regions with respective areas accommodating from 300,000 to 700,000 people or from 0.2 to 0.5% of the total country's population each. In addition, 29 regions or 32.6% of the entities of the Russian Federation are Class III or less hazardous regions [15].

This means that more than half of the national population who live in two thirds of the Russian regions stay in extremely hazardous or hazardous conditions, which threaten to human health. In addition to unfavorable natural and social environment such conditions involve almost 45,000 hazardous facilities where most of these people work at or are living close to. Precisely, these regions and communities should be in the focus of the new

emergency management policy at the regional level. At the same time, mitigation measures should be developed and implemented at the federal level, too. These should consider the whole Russian population given the average level of individual risk in two orders of magnitude exceeding that existing in the world most industrialized countries. If put into practical terms in the foreseeable future, the new emergency management policy would provide for more comprehensive national security policy of Russia and her sustainable development for a long-term perspective.

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