



# Economic management mechanisms in the EMERCON system: concept and development

## Mecanismos de gestión económica en el sistema EMERCON: concepto y desarrollo

SMIRNOVA, Irina Viktorovna [1](#); OSIPCHUK, Igor Vasilevich [2](#); BARDULIN, Evgenij Nikolaevich [3](#); GORBUNOV, Aleksey Aleksandrovich [4](#) & ONOV, Vitaly Alexandrovich [5](#)

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#### ABSTRACT:

Economic management mechanisms applied in the system of the Emergency Control Ministry (EMERCOM) are considered in the article – in particular, insuring enterprises against natural and man-made emergency situations; benefits of insuring costs of enterprises and organizations on the localization and control of emergencies are justified. Special attention in the article is paid to incentives for voluntary fire organizations. The analog method is used in the article to explore the Russian legislation and foreign experience of incentives for voluntary fire organizations. The concept of economic management mechanisms in the EMERCOM system is clarified, the key areas of developing the insurance against natural and man-made emergencies are found, and incentive measures are offered based on the studies of foreign experience of incentive measures for voluntary fire organizations, which can be used in the Russian Federation.

**Keywords:** Economic mechanism, management in the EMERCOM system, insurance, voluntary fire organization, incentive measures for voluntary firefighters

#### RESUMEN:

Los mecanismos de gestión económica aplicados en el sistema del Ministerio de Control de Emergencias (EMERCOM) se consideran en el artículo, en particular, asegurando a las empresas contra situaciones de emergencia naturales y provocadas por el hombre; Los beneficios de asegurar los costos de las empresas y organizaciones en la localización y control de emergencias están justificados. Se presta especial atención en el artículo a los incentivos para las organizaciones de bomberos voluntarios. El método análogo se usa en el artículo para explorar la legislación rusa y la experiencia extranjera de incentivos para organizaciones voluntarias de bomberos. Se aclara el concepto de los mecanismos de gestión económica en el sistema EMERCOM, se encuentran las áreas clave para desarrollar el seguro contra emergencias naturales y provocadas por el hombre, y se ofrecen medidas de incentivo basadas en los estudios de experiencia extranjera de incentivos para organizaciones voluntarias de fuego. que se puede utilizar en la Federación Rusa.

**Palabras clave:** mecanismo económico, gestión en el sistema EMERCOM, seguros, organización voluntaria contra incendios, medidas de incentivo para los bomberos voluntarios.

## 1. Introduction

There are more than 4 thous. essential and 13 thous. potentially hazardous operating objects in the territory of the Russian Federation. About 90 mln citizens of the Russian Federation live in the impact zones of potentially hazardous objects. 3/4 of all essential and potentially hazardous objects are concentrated in the European part of the territory of the Russian Federation (Insuring enterprises against natural and man-made emergencies, n.d.)

The number of emergencies in the Russian Federation decreased by 14 % in comparison with 2016, but material damage increased for all types of emergencies (Table 1).

**Table 1**  
Number of emergencies in the Russian Federation for 2016 – 2017  
(State report on the state of protection of the population and territories, 2018)

Emergency type	Number		Increase (↑)	Material damage, mln rub.		Increase (↑)
	2016	2017	Decline (↓)	2016	2017	Decline (↓)
Man-made emergencies	178	176	1.1 (↓)	1,345.018	499.073	69 (↑)
Major terrorist attacks	0	1	100 (↑)	0	0	0
Natural emergencies	54	42	22.2 (↓)	7,117.017	9,766.277	37 (↑)
Biological social emergencies	67	38	43.3 (↓)	537.977	967.626	80 (↑)
Total	299	257	14 (↓)	9,000.002	11,232.975	25 (↑)

The above data indicate the significance and an important role of economic mechanisms for regulating security in society in improving the efficiency of management in the EMERCOM system.

## 2. Methods

The concept of a mechanism was borrowed by economics from the technical field, where the mechanism is defined as the inner assembly of a machine, a tool, or an equipment that powers them up (Kholodkova, 2016). Various methods and techniques, which are integral parts of a mechanism, usually act as a set of elements that power up something in economics.

Multiple definitions of the concept of "economic mechanism" can be found in the scientific literature, for example:

the economic mechanism is a set of methods of management and interaction between the subjects; rational management and the establishment of sustainable patterns in the development of the economy being the objective function (Bychkova, 2010).

the economic mechanism is a system of cause-effect and reverse relationships on the arrangement and management of the economy in all its aspects (production, exchange, distribution, and consumption) and at all levels of the economy (from a sole producer and enterprise to the national economy in general and the global level) (Economic mechanism, n.d.).

A set of methods, techniques, and rules of using economic means in management is common in the above definitions. Obviously, it is about legal and methodological, organizational and technological methods, techniques and rules in relation to the socioeconomic system.

As such, the authors suggest using the following definition of economic mechanisms in relation to management in the EMERCOM system: it is a set of legal and methodological, organizational and technological methods, techniques and rules of using economic means to regulate the level of safety, as well as the impact on economic processes associated with prevention and control of emergencies.

Financial and material resources are being formed to control natural and man-made emergencies at all levels, in accordance with Resolution of the Government of the Russian Federation No. 1340 dated November 10, 1996 "On the procedure for creating and using the reserves of material resources to control natural and man-made emergencies" (Resolution of the Government of the Russian Federation No. 1340, 1996).

The reserves of financial and material resources increased in the regions of the Russian Federation in 2017. The total reserves of financial resources for control of emergencies created in all regions of the Russian Federation amounted to 64,282.685 mln rubles in 2017. The financial reserves of the regions

increased by 15,342.265 mln rubles (+ 31.4 %), in comparison with 2016. The regions of the Russian Federation spent 20,256.825 mln rubles from the reserve funds on flood prevention and fire safety measures, control of the consequences of emergencies, provision of financial assistance to the affected population, and other purposes in 2017 (State report on the state of protection of the population and territories, 2018).

The reserves of material resources for control of emergencies were created in all regions of the Russian Federation in 2017. Total reserves of material resources for control of emergencies accumulated by the executive authorities in the regions of the Russian Federation amounted to 16,120.355 mln rubles (89.6 % of the target accumulation). They increased by 266.296 mln rubles (+1.7 %), in comparison with 2016 (State report on the state of protection of the population and territories, 2018).

Federal laws No. 68-FZ dated 21.12.1994 "On the protection of the population and territories from natural and man-made emergencies" (Article 14), No. 116-FZ dated 21.07.1997 "On the safety of hazardous production facilities" (Article 10) (Federal law No. 116-FZ, 1997), No. 117-FZ dated 21.07.1997 "On industrial safety of hydraulic structures" (Article 9) (Federal law No. 117-FZ, 1997), Order of the EMERCOM of the Russian Federation No. 105 dated 28.02.2003 (Chapter V, Clause 67) (Order of the EMERCOM, 2003), and other enactments provide for the obligation for enterprises to form financial reserves and material resources for localization and control of emergencies.

Violation of the requirements of Federal law No. 68-FZ dated 21.12.1994 "On the protection of the population and territories from natural and man-made emergencies", particularly in the part relating to the formation of financial reserves for control of emergencies, is an administrative offense, the liability for which is provided for by Article 20.6 of the Code of Administrative Offenses of the Russian Federation.

So far, the financial and economic situation of most of Russian enterprises does not allow them to fulfill the established requirements for the formation of financial reserves in full (State report on the state of protection of the population and territories, 2018). As a result, in the event of emergencies, a significant part of the costs associated with their control falls on the federal budget and the regional budgets of the Russian Federation.

It is advisable to use a mechanism for insuring enterprises against natural and man-made emergencies to solve this problem, which is voluntary insurance, i.e. it offers a choice for enterprises either to put the amount of possible costs of localization and control of emergencies on the target account or conclude an insurance contract for this amount and pay only the cost of insurance.

Insurance is one of the most efficient methods of managing the emergency risks.

Insurance is relations for the protection of the interests of individuals and legal entities, the Russian Federation, regions of the Russian Federation, and municipal entities upon the occurrence of certain insured events from funds formed by insurers from paid insurance premiums, as well as from other means of insurers (Federal law No. 4015-1, 1992).

As such, the concept of insurance is that consumers of insurance services are guaranteed a compensation for potential damage through the redistribution of the amount of damage among the few affected among all insurants. Besides, emergency insurance reduces the burden on the budgets, providing for the early allocation of the necessary funds for insurance. Insurance is a financial stabilizer in the modern economy, which allows the society to compensate for damages that occur as a result of disasters that cause damage to the state, business, and population.

In addition to financing emergency control measures, insurance contributes to more efficient operation of the entire economy, reducing the emergency risks and evenly distributing them among other participants in the insurance market (Resolution of the Government of the Russian Federation No. 989, 2011).

A well-developed insurance infrastructure can remove the financial burden from the state or substantially reduce it in order to help keep citizens' peace of mind and well-being, while avoiding substantial expenditures from the federal budget. If no emergencies occurred, insurance companies can freely invest financial resources accumulated from insurance activities into various financial institutions (banks, stock exchanges, etc.), thus supporting cash flows in the country's economy and preventing such negative phenomena as inflation and default.

The necessity of creating a reliable insurance protection system has always been relevant for Russia due to its huge territory exposed to natural, man-made, environmental, and other risks. Special attention among major problems identified in the Strategy for the development of insurance in the Russian Federation through to 2020 (Order of the Government of the Russian Federation No.1293-r, 2013) is paid to the development of insurance against acts of the elements, natural disasters, man-made accidents, and fires.

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### **3. Results**

The most important areas of developing the mechanisms for insuring the emergency risks are the following:

identification and analysis of major trends in the dynamics of natural, man-made, and environmental disasters, both in Russia and abroad; identification of the dangers of global climate change and the impact of disasters on the stability and development of economic systems,

analysis of foreign markets for insuring emergency risks, identification of questionable areas for emergency risk insurance and identification of ways to develop the system of emergency risk insurance in the Russian Federation,

increase in the efficiency of mechanisms for payments from the reserve fund of the Government of the Russian Federation for the prevention and control of emergencies and the consequences of natural disasters, as well as mechanisms for provision of state housing certificates to citizens who have lost their housing due to an emergency,

development of mechanisms for housing insurance against natural disasters, including definition of the state role in housing insurance against natural disasters; assessment of the insurance market and risks of housing insurance against natural disasters; and definition of the medium-term prospects for developing housing insurance against natural disasters in the Russian Federation,

further perfection of mechanisms for compulsory insurance of civil liability for owners of hazardous facilities adopted by Federal law No. 225-FZ dated July 27, 2010 "On compulsory insurance of civil liability for owners of hazardous facilities for harm caused by an accident at a hazardous facility" (Federal law No. 225-FZ, 2010),

perfection of mechanisms for compulsory insurance of civil liability of a carrier adopted by Federal law No. 67-FZ dated June 14, 2012 "On compulsory insurance of civil liability of a carrier for damage to life, health, and property of passengers and on the procedure for compensating such damage caused during carriage of passengers by the metro" (Federal law No. 67-FZ, 2012),

introduction of insurance mechanisms against nuclear and radiation accidents at nuclear and radiation hazardous facilities, and

perfection of the insurance issues for tourism activities, development of mechanisms of state regulation and policies in tourism development, liability of agents engaged in tourism activities to tourists, as well as mechanisms and procedures for the payment of insurance compensation.

Insuring the costs of enterprises and organizations for localization and control of emergencies is very important. About 90 % of all hazardous objects subject to insurance were insured in 2017 (State report on the state of protection of the population and territories, 2018).

In this case, the insurance company covers the company's spending on measures to localize and control the consequences of emergencies arising as a result of the occurrence of the following events:

catastrophes, accidents,

fire,

natural disaster,

unlawful acts of third parties, and

crash of aircrafts, etc.

Insurance covers the following spending of the enterprise:

search and accident rescue operations,

conducting emergency accident rescue operations at housing, utilities, energy, and social services facilities suffered from emergencies,

procurement, delivery and short-term storage of material resources for the immediate life necessities for the affected population,

deployment and maintenance of temporary accommodation and catering facilities for evacuated suffered citizens,

delivery of material resources from the material reserve to the emergency site, and

compensation of costs related to the involvement of the EMERCOM forces and resources, as well as other organizations for emergency measures to control emergencies.

## 4. Discussion

Priorities of the EMERCOM of Russia include ensuring the fire safety of remote rural areas. Units of a voluntary fire and rescue service are being formed to prevent and fight fires, run accident rescue operations on the territory of settlements, and help the suffered population. The headcount of public fire safety organizations exceeds 900 thous. people (State report on the state of protection of the population and territories, 2018).

There are many rural areas in the Russian Federation, where the first subdivision can arrive later than Federal law No. 123-FZ dated July 22, 2008 "Technical regulations on fire safety requirements" allows – 20 minutes (Federal law No. 123-FZ, 2008). As such, the issue of arranging firefighting in rural areas is quite acute. The creation of professional fire departments to ensure fire safety of these areas requires additional costs from the federal budget, the budgets of the regions of the Russian Federation, and municipalities. This is why the organization of voluntary fire organizations is so important for such settlements.

There are more than 7,000 public fire safety associations in the Russian Federation (Razvitiye dobrovolnoy pozharnoy okhrany v Rossiyskoy Federatsii, 2012).

Incentive measures for voluntary firefighters are regulated by Article 16 of Federal law No. 100-FZ dated of 06.05.2011 (as amended on 22.02.2017) "On voluntary fire safety". At the same time, the specific size of incentive measures for voluntary firefighters and its form have not been established. They depend on the amount of funds allocated for financing the voluntary fire brigade and the personal contribution of voluntary firefighters to the results of the voluntary fire brigade.

In accordance with Clause 3 of Article 31.1 of Federal law No. 7-FZ dated January 12, 1996 "On noncommercial organizations", support to socially-focused nonprofit organizations is provided as follows (Federal law No. 7-FZ, 1996):

- 1) financial, property, information, consulting support, as well as support in training, retraining and advanced training of employees and volunteers of socially-focused nonprofit organizations,
- 2) granting benefits in the payment of taxes and fees in accordance with the legislation on taxes and fees to socially-focused nonprofit organizations,
- 3) placing orders for goods, works, services for state and municipal needs from socially-focused nonprofit organizations as prescribed by the Federal law "On placing orders for goods, works and services for state and municipal needs", and
- 4) granting benefits for paying taxes and fees in accordance with the legislation on taxes and fees to legal entities that provide material support to socially-focused nonprofit organizations.

Public authorities, local governments, and organizations can offer incentives for voluntary firefighters (Federal law No. 100-FZ, 2011).

For example, voluntary firefighters are paid compensation for the absence at the place of work or study as determined by the relevant public fire safety associations.

Citizens can be recruited to the duties of volunteer firefighters in excess of the 48-hour duration of weekly service (duty) with their consent and with the payment of monetary compensation. If it is impossible to provide compensation, the time citizens spent on the duties of volunteer firefighters over the 48-hour duration of weekly time is added up and provided as additional time off work.

Voluntary firefighters listed in the consolidated register of volunteer firefighters for at least three years are eligible for admission to fire-technical educational institutions out of competition if they successfully pass entrance examinations.

Voluntary firefighters are granted additional annual unpaid leave for up to ten calendar days. Employers can also grant voluntary firefighters an annual additional paid leave of three calendar days.

Public authorities in the regions of the Russian Federation and local governments can reimburse employees of voluntary fire organizations and voluntary firefighters for the costs associated with the use of personal vehicles to perform the tasks of the voluntary firefighting, as well as provide free meals to voluntary firefighting during their duties from the relevant budgets.

Voluntary firefighting has historical roots, national features, and traditions abroad. However, it was created for uniting the efforts of citizens (amateurs) to fight fires in all countries, including Russia.

Sources of funding for rescue services in most developed countries are the same: state and local budgets, as well as contributions from legal entities and individuals. Financial and material technical provision of the voluntary fire organizations in the Russian Federation is made from the own funds, contributions and donations, equity funds, support measures of the state and local authorities and through other means not prohibited by the legislation of the Russian Federation (Shpakovsky et al., 2013).

The principles of recruiting for duty in rescue units abroad vary: it is voluntary in the UK, conscription in Turkey and Portugal, or voluntary combined with the obligatory conscription of certain categories of citizens in Germany, France, Belgium, Norway, and the Netherlands.

For example, emergency protection services in Germany serve as the basis of the numerous trained civil defense units. They are staffed by volunteers who have pledged to work in these services for a decade, if they are exempted from military service in exchange (Shpakovsky et al., 2013).

In most developed countries, voluntary firefighting is based on the principles of incentive measures (full or partial pay) of the top management and the key technical personnel (drivers, motorists, and mechanics). The activities of the remaining members of the voluntary fire organizations are stimulated by hourly wages for fighting fires or serving duty at the fire station, as well as by benefits (Table 2).

**Table 2**  
Key characteristics of voluntary fire organizations in some countries (From the experience of foreign countries, n.d.)

<b>Country</b>	<b>Headcount of voluntary fire organization, thous. people</b>	<b>Benefits and social guarantees for volunteer firefighters</b>	<b>Moral incentives for volunteer firefighters</b>
US	827	<p>Benefits and social guarantees are defined by local authorities.</p> <p>Retirement after 20 years of service in voluntary fire organization or 5 years of service when reaching the age of 50.</p> <p>Reimbursement of treatment costs up to \$5 thous. per year.</p> <p>Free dental care, compensation of a kindergarten up to \$5 thous. per child per year. Provision of up to 15 days additional days off – for duty during the holidays, and depending on the length of service.</p> <p>Insurance against death, injury, or disability.</p>	<p>Public recognition and support, prestige of the profession.</p> <p>Free supply with uniforms by local authorities. Participation in associations, forums, clubs of voluntary fire organizations.</p> <p>Local authorities award the distinguished firefighters with prizes and valuable gifts for active duty and control of consequences of socially significant emergencies.</p>
Germany	1,060	<p>Benefits and social guarantees are defined by the German Land Administration.</p> <p>Service in voluntary fire organizations is included in the total seniority for the pension. There is an allowance to the pension for honored voluntary firefighters in some Lands.</p> <p>Exemption from military service if 6 years are served in voluntary fire organizations.</p> <p>Insurance against death, injury, or disability.</p> <p>Getting paid at the main place of work for the time spent on operational work and for the 10-week training period.</p> <p>Full or partial pay to top managers and key technical personnel (drivers, motorists, and mechanics).</p>	<p>Moral incentives as awards (for 25 years of impeccable service, for special merits, for 40 years of impeccable service), badges of merit, public recognition, and payment of membership in associations, unions and clubs. Free supply with uniforms and meals during service in voluntary fire organizations.</p>
France	200	<p>Benefits and social guarantees are defined by local authorities.</p> <p>There are annual allowances to the pension: 450 euros after 20 years of service in voluntary fire organizations, 1,800 euros after 35 years of service.</p> <p>Payment for the participation of volunteers in</p>	<p>Moral incentives as awards, badges of merit, and public recognition.</p> <p>Free supply with uniforms and meals during service in voluntary fire organizations.</p>

	rescue operations (including firefighting): 10.49 euros per hour for managers, 7.5 euros per hour for unit heads, and 6.7 euros per hour for firefighters.  Getting paid at the main place of work for the time spent on operational work in voluntary fire organizations.	Provision of vacations at any time of the year.
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## 5. Conclusion

As can be seen from the table, foreign experience of incentive measures for voluntary fire organizations can also be used in the Russian Federation. In particular, a wide range of benefits can be used:

- early retirement,
- compensation for treatment costs,
- free dental care,
- child benefits for kindergarten,
- allowance to the pension for honored voluntary firefighters,
- exemption from military service in case of a certain length of service in voluntary fire organizations, and
- getting paid at the main place of work for the time spent on operational work.

These incentives for recruiting citizens to voluntary fire organizations will allow to improve the provision of fire safety in remote rural areas without the allocation of considerable funds from the respective budgets.

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1. Saint-Petersburg university of state fire service of EMERCOM of Russia, Saint- Petersburg, Russian Federation. E-mail: [irina-v-smirnova@bk.ru](mailto:irina-v-smirnova@bk.ru)

2. Saint-Petersburg university of state fire service of EMERCOM of Russia, Saint- Petersburg, Russian Federation

3. Saint-Petersburg university of state fire service of EMERCOM of Russia, Saint- Petersburg, Russian Federation

4. Saint-Petersburg university of state fire service of EMERCOM of Russia, Saint- Petersburg, Russian Federation

5. Saint-Petersburg university of state fire service of EMERCOM of Russia, Saint- Petersburg, Russian Federation