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REGIONAL ECONOMIC ASPECTS OF EMERGENCY MANAGEMENT

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Summary. This article is dedicated to the increasing negative impact on the modern economy of various natural disasters, man-made accidents, environmental catastrophes, and socio-political conflicts that give rise to specific economic conditions known as emergency situations.

The purpose of the article is to provide a conceptual justification for a regional economic mechanism that enables: monitoring of emergency prevention and consequence elimination; preventive planning of measures; forecasting of emergencies; economic assessment of total damage based on tools for regulating disaster localization processes; and the regeneration and full restoration of territories following destruction.

Information Base and Research Methods: The theoretical and methodological foundation for addressing the research objectives consists of the principles of dialectical inquiry within a systems-approach framework. General scientific and specific methods were employed to substantiate the concept: abstraction and concretization, subject-object and structural-functional analysis, historical-logical, comparative, and simulation analysis, deduction and induction, as well as graphical and mathematical modeling, interpolation, and extrapolation.

In pursuing the research goals and objectives, works by domestic and foreign scholars on regional economics, risk theory for modern socio-economic systems, the functioning of meso- and macro-level economies, and the modeling of socio-ecological-economic processes were utilized. Theoretical studies on mechanisms and tools for managing regional systems and the factors influencing their socio-economic development were also incorporated.

Keywords: emergency situation, disaster, man-made accident, monitoring, economic, socio-political conflict, regional system, etc.

Introduction. Various natural disasters, man-made accidents, environmental catastrophes, and socio-political conflicts—which give rise to specific economic conditions known as emergency situations—are exerting an increasingly negative impact on the modern economy. This trend is characteristic of the entire global community; however, it is particularly acute for our republic due to its complex natural and climatic conditions, the large number of potentially hazardous facilities, accelerating depreciation of fixed assets, and the incomplete reform of the emergency prevention and response system.

In general, the system of emergency prevention and response in our republic is built on the operative reaction of the Ministry of Emergency Situations to disasters that have already occurred. However, as experience shows, this approach does not yield the desired results. Despite increased government funding, neither the number of casualties nor the scale of economic damage is declining. Therefore, there is a need for a comprehensive approach based not only on the departmental activities of the Ministry of Emergency Situations but also on territorial management principles that ensure the synergy of efforts at all levels of government, business entities, and civil society structures—both new and existing in the relevant territory.

A characteristic feature of any emergency is its territorial context. Accordingly, comprehensive disaster prevention and mitigation measures are possible only through a territorial approach implemented via regional governance. Regional authorities possess the highest level of knowledge about local conditions, are in close proximity to emergency zones, have access to local resources, and are capable of responding promptly to negative changes in the parameters of the regional socio-

economic system and institutional environment caused by emergencies—as well as developing and implementing an economic mechanism for emergency prevention and consequence elimination [1,2].

Moreover, this mechanism—representing the system of relations within the framework of regional socio-economic development—plays a key role in ensuring the comprehensiveness that allows for the seamless integration of operational measures taken during emergencies with preventive measures and activities aimed at the full economic rehabilitation of facilities and districts. Its development and effective application is the primary factor in improving the internal system for emergency prevention and consequence elimination.

For these reasons, there is an objective need for the theoretical and methodological justification of an existing concept for organizing emergency prevention systems.

Main Body. The depth of this research is characterized by various studies examining different aspects of regional economic management. In particular, drawing on the works of John Keynes, Karl Marx, Alexander Marshall, David Ricardo, and others, our position on the patterns of economic development has been formulated in the context of the variability of impacts from various disasters and the necessity for society to respond to extreme economic changes.

However, the relatively short period of study of the functioning processes of regional socio-economic systems under emergency conditions—during the transition to a market economy in Azerbaijan at the turn of the 21st century—does not allow for determining their regularities, peculiarities, and determinants. This necessitated further scientific elaboration of the existing problem, which in turn defined the purpose and conceptual framework of the research.

The primary objective of this research is to provide a conceptual justification for a regional economic mechanism that enables: monitoring of emergency prevention and consequence elimination; preventive planning of measures; forecasting of emergencies; economic assessment of total damage based on tools for regulating disaster localization processes; and the regeneration and full restoration of territories following destruction.

To achieve the stated objective, the following tasks must be accomplished:

- To determine the essence, types, properties, and principal features of emergency situations, their manifestations within the regional economy according to the territorial localization of various disasters, and their negative impact on socio-economic systems;
- To identify the key factors influencing the state of regional socio-economic systems during emergencies, and to characterize their multiplicative effects on entities not directly exposed to emergency impacts;
- To provide a systematic description of the structure of institutions and the nature of inter-institutional linkages at the regional level within the emergency prevention and mitigation framework;
- To describe the system of relations, formation principles, operational methods, and implementation pathways of the regional economic mechanism for emergency prevention and consequence elimination;
- To identify problems in the existing emergency prevention and response system at the national and regional levels;
- To substantiate a model for the regional emergency prevention and consequence elimination system adapted to contemporary conditions and trends, including preventive measures to reduce emergency risk in the regional economy;
- To develop a monitoring system for potentially hazardous areas and facilities in the region in order to forecast emergencies, the scale of their impact on regional economic entities and sectors, and the severity of economic consequences;
- To develop a methodology for assessing economic damage from emergency consequences within the framework of the regional economic mechanism for emergency prevention and mitigation;
- To develop a methodology for planning rescue operations and recovering the damaged district economy;

– To develop an algorithm for identifying regional targets eligible for targeted state support with a view to restoring their post-emergency potential and realigning the region's productive and market capacities.

The current economic development of our republic's regions is accompanied by the growing negative effects of specific extreme factors generating various types of emergency situations. This necessitates the modernization of existing economic systems and emergency response mechanisms. The current operative approach to emergency response—comprising technical and rescue measures directed at the elimination of emergencies—is not delivering the desired results.

It is first and foremost necessary to implement a preventive approach that effectively addresses emergency prevention functions. This approach is based on the combination of centralized, departmental, and tactical elements with active, territorial, and strategic approaches in emergency prevention and response management, with the region becoming the primary system-forming unit of these activities. A specialized economic mechanism—encompassing specific functions and structures, methods and tools, as well as resources and channels for achieving the goals of its constituent parts—must serve as the principal instrument for ensuring regional security and sustainable development.

The principal instrument for ensuring regional security and sustainable development must be a specialized economic mechanism with specific functions and structures, methods and tools, as well as resources and channels for achieving the goals of its constituent parts—for emergency prevention and consequence elimination. The social base must be broadened to enhance the effectiveness of this mechanism by integrating state and local self-governance bodies, enterprises across all sectors and industries, public organizations, and civic institutions.

From an economic perspective, emergency situations—when natural disasters, man-made accidents, environmental catastrophes, and socio-political conflicts occur and spread across a region—represent a particularly acute destabilization of the regional economy. The introduction of a special economic regime during negative natural disasters is a necessary measure and is associated with the sudden, complete, or partial disruption of economic ties and relations, as well as the specific conditions and behavior of their subjects [3].

Traditionally, the physical (natural and technical) and socio-psychological aspects of emergencies are considered of primary importance. However, a modern approach to addressing emergencies requires particular attention to the spatial and economic dimensions. This aspect of emergency situations manifests in the decline of the population's quality of life, the disruption of the stability of socio-economic processes, and various types of damage occurring within a specific territory. The relevance of this aspect drives changes in the principles, methods, and tools of economic governance at the regional level.

The typological components of an emergency's impact on the regional economy should include: damage from the direct write-off of fixed assets; lost profits resulting from the reduction of economic activity; the need for significant restoration expenditures; and indirect damage to economic partners outside the emergency zone that are associated with affected entities.

The economic consequences of emergencies can be divided into explicit (unambiguously quantifiable) and implicit (not directly linked to the emergency, but rather reflecting a general deterioration of the regional economy). These factors determine the specific response of the regional economy: the temporary introduction of administrative governance measures, resource mobilization, urgent measures to support the population, and the execution of emergency and restoration works.

The regional subsystem for emergency prevention and response, as a component of the overarching system, has a hierarchical structure comprising three levels: regional, municipal, and individual firms and organizations. This regional system is integrated with the structure of regional governmental bodies and plays a leading role in the overall system through: the localization of resources and capital, potentially hazardous zones and facilities; the rational placement of organizations; the preparation of the population and regional entities for sustainable functioning under emergency conditions; the formation of a reserve system; the conduct of emergency monitoring; the development and implementation of targeted programs; the coordination between governmental and

local authorities; and the availability of effective administrative and economic levers for achieving the goals of the overall system.

The regional economic mechanism for emergency prevention and elimination represents a system of relations among state bodies, businesses, and the local community. Based on the corporate principles of resource centralization, activity consolidation, interest alignment, systemic approach, scientific methodology, and institutional and material support, it addresses a broad spectrum of tasks to ensure population protection and regional economic resilience. This mechanism operates through a combination of centralized mobilization and entrepreneurial initiative before and after emergencies [4,5].

It can be represented as a model of a multi-level cyclical process with targeted blocks: forecasting, organization, planning, financing, monitoring, diagnostics and correction in the processes of subordination and coordination, differentiation, and integration of measures for the prevention, restoration, and economic rehabilitation of affected entities and economic facilities in the region.

The modern emergency prevention and response system was developed during a difficult period of market transformation in the domestic economy. It operates within an operational framework and responds reasonably well to emerging threats and challenges; however, its economic efficiency falls short of desired standards, and increased budget allocations have not reduced the negative economic impact of emergencies.

As a whole, it faces complex challenges: evaluation of the regional economic mechanism, institutionalization, insufficient utilization of local resources, etc. The key to transforming these challenges into “areas of improvement” lies in the fundamental modernization of the entire system of relations—a transition to an economic concept based on the correlation of investment and impact. This will create conditions for increased interaction between public and commercial institutions at the regional level.

The operative concept of emergency prevention and management is clearly oriented toward the implementation of core activities during disasters, including rescue and other emergency operations. Modernization in this area is structured by shifting focus toward disaster prevention and economic recovery following their occurrence.

The imperatives of this modernization include: regional integration of the activities of administrative-territorial state bodies, businesses, socio-political structures, and civil society institutions; the involvement of all regional organizations in the implementation of ongoing measures; and the utilization of local capacities and resources.

Strategic management of emergency prevention and response is more effective when based on proactive, up-to-date monitoring of potentially hazardous zones and facilities—accompanied by the implementation of forecasts and roadmaps that currently only reflect retrospective data on past emergencies. The information databases of available resources and production factor reserves must be integrated into monitoring systems, taking into account their regional distribution and a comprehensive forecast of the economic impact across the full spectrum of potentially hazardous facilities and zones.

It is advisable to generate forecasts based on a combination of scenarios and models of disaster consequences in affected territories, reflecting parameters such as losses of reserves and production factors, the reduction of reserves and potential, the scale of economic damage, as well as the needs and capabilities for mobilizing resources for recovery operations.

A key element of the effective functioning of the regional economic mechanism for eliminating the economic consequences of emergencies is their assessment—which enables the substantiation of the full spectrum of activities from a risk-need-cost perspective. This assessment is based on a methodology for determining total economic damage from emergencies, encompassing the calculation of multi-period indicators: direct losses, damage from lost production, indirect damage, and restoration costs [5].

This enables a comprehensive description of emergency situations across the following phases: forecasting, emergency response, restoration, and full economic rehabilitation. The advantage of this methodology lies in its adaptability to the complex hierarchical economic structure of regional socio-

economic systems and in the unification of opportunities for integrating indicators at various levels for both economic and social entities.

The stressful nature of emergency situations necessitates the planning of a full complex of measures for conducting rescue and emergency operations, restoring damaged facilities, and economically rehabilitating affected districts. Under modern conditions, such planning must be carried out within information and reference systems that integrate methods for calculating financial and material resources, specialized teams, and the volume of restoration work.

From a mesoeconomic perspective, the purpose of this planning is to stabilize the economic situation by eliminating emerging imbalances in factors and processes, interests and proportions, and to create conditions and programs for the full economic rehabilitation of the affected region [6].

Limited resources necessitate the optimization of their distribution among the economically and socially most important or imperative projects—at the expense of those with no future prospects. The identification of projects for targeted state support requires a combination of directives and initiatives, along with the necessity and possibility of conducting competitive tenders for restoration and economic rehabilitation projects.

The criteria for selecting the method of restoring economic and social entities are based on their status, the severity of emergency consequences, the scale and significance of these consequences for the region, their participation in interregional and international integration, the volume and sources of required assistance, investment capacities, and oversight of their utilization [7].

It is advisable to develop the theoretical and methodological justification and methodological support for the regional economic mechanism of emergency prevention and consequence elimination.

The economic content of an emergency in the regional economy has been defined by us as a specific, suddenly arising situation that generates and corresponds to numerous extremely negative forms of its multidimensional existence, giving rise to both internal and external impacts.

The typological components of the negative impact of actual and potential emergencies on the regional economy have been identified: disruption of reproduction processes and their scale; loss of key factors and reserves; reduction of the economic activity of business entities; diversion of resources toward preventive measures; obstruction of growth and development; and multiplicative consequences.

It has been substantiated that the leading functional and integrating role in the emergency prevention and consequence elimination system is performed by the regional level of governance—through the fulfillment of monitoring functions, forecasting, development and implementation of preventive measures, and assessment of the effectiveness of localization of hotspots and potential hazard zones.

A model of the regional economic mechanism for emergency prevention and consequence elimination has been developed, based on a compromise of the interests of participants in the cycle of ensuring population security and regional economic resilience—including its entities and facilities, functions and structures, multiple levels and aspects, the nature of subordination and coordination, and their target designations and criteria for implementation [8,9].

The tendencies of growing negative impact of emergency situations on the economy of Azerbaijan and its regions have been identified—developing rapidly despite increasing budget allocations for these purposes—on the basis of which a number of problems have been identified that impede the creation of an effective system for ensuring the competitiveness and resilience of the economy and the security of the population.

The imperatives and priorities of modernizing the regional system of emergency prevention and consequence elimination have been defined, making it possible to enhance its effectiveness on the basis of developing integration processes and activating business structures and local communities.

A fundamental model for the integration of forecasting and assessment at the regional level into a monitoring system has been described—for the interpretation of potentially hazardous economic entities and institutions, projects and processes, the economic consequences of emergencies, parameters, and measures for their prevention or elimination.

A methodology for determining total economic damage—enabling the assessment of emergency consequences across the complex of subsystems of the regional economy at all stages of the regional economic mechanism for emergency prevention and consequence elimination—has been substantiated.

A methodology for planning the recovery of the district economy has been developed—adapted for the creation of an information and reference system for emergency management—including the performance of emergency works, full restoration of affected local economic entities, and the complete rehabilitation of the region following disasters.

An algorithm for selecting targets for targeted state support has been presented—with the purpose of economic rehabilitation of households and enterprises affected by emergencies—enabling the optimization of the distribution of regional resources.

The theoretical significance of the research findings is determined by the possibility of using them as conceptual material for future scientific studies devoted to the sustainable development of territorial systems and the improvement of the economic mechanism of regional governance.

The research into the regional economic mechanism for preventing and managing emergency situations arising from socio-political conflicts, natural disasters, accidents, and catastrophes has led to a number of conclusions, summarized as follows:

The resilience of socio-economic systems in emergency situations is built upon the prevention of their causes, the avoidance of the disasters themselves, and the maximum mitigation and elimination of their consequences. The primary authority responsible for ensuring emergency prevention and consequence elimination—and the subject of its economic mechanism—is a multi-tiered governance system comprising the Ministry of Emergency Situations of the Republic of Azerbaijan along with other central executive bodies, state leadership, and ministries.

Each of these bodies includes: governance authorities; day-to-day management bodies; forces for monitoring and controlling the state of the natural environment and eliminating emergency consequences; communication and information support systems; as well as material-technical and financial resources.

Conclusion. At present, the emergency prevention and mitigation system is being developed within the framework of an operative concept. This concept does not ensure genuine comprehensiveness. Reducing population vulnerability and enhancing the resilience of regional socio-economic systems through improved economic mechanisms requires a transition to an institutional concept and the development of a specific theory for the regional economic mechanism of emergency prevention and mitigation.

The modern regional system of emergency prevention and consequence elimination must be based primarily on the conceptual creation of conditions that will prevent the emergence and development of potentially hazardous processes and events, and must rest on a system of relations that automatically compensates for any damage incurred. The primary role herein belongs to a complex of preventive measures: prophylactic, warning, protective, radical, economic, and social.

It should be emphasized that the set of measures recommended in this article will be most effective if implemented comprehensively and in the near term. This will significantly alter the existing trends of the growing negative impact of emergencies on the regional and national economy, and will substantially improve the security of the population, the overall resilience of the socio-economic development of the country and its regions, and their economic and national security.

Recommendations

1. It is advisable to develop the theoretical and methodological justification and methodological support for the regional economic mechanism of emergency prevention and consequence elimination.
2. Limited resources necessitate the optimization of their distribution among the economically and socially most important or imperative projects—at the expense of those with no future prospects.
3. The identification of projects for targeted state support requires a combination of directives and initiatives, along with the necessity and possibility of conducting competitive tenders for restoration and economic rehabilitation projects.

4. It is necessary to develop a methodology for planning the recovery of the district economy—adapted for the creation of an information and reference system for emergency management—including the performance of emergency works, full restoration of affected local economic entities, and the complete rehabilitation of the region following disasters.
5. It is advisable to present an algorithm for selecting targets for targeted state support—with the purpose of economic rehabilitation of households and enterprises affected by emergencies—enabling the optimization of the distribution of regional resources.
6. The principal instrument for ensuring regional security and sustainable development must be a specialized economic mechanism with specific functions and structures, methods and tools, as well as resources and channels for achieving the goals of its constituent parts—for emergency prevention and consequence elimination. The social base must be broadened to enhance the effectiveness of this mechanism by integrating state and local self-governance bodies, enterprises across all sectors and industries, public organizations, and civic institutions.

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