EMERGENCY MONITORING IN UKRAINE FOR 2017 YEAR

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Uptrend in the growth of population density, instability, industry, imperfections of economic and political culture that occur in Ukraine are inherently linked to the increase in the risk level of emergencies of different types from the objective to the global level.

One of the ways to increase the effectiveness of security in cities is to create a system for monitoring of potentially dangerous objects, which in its turn is not possible without fundamental review, with a view to their clear definition, principles of building a security system of the local level.

The estimation of potential losses should be carried out at the stages of pre-design and research development while choosing the priority measures for the protection of a specific area of the territory, when substantiating the choice of options for the location of urban construction in territories with extreme nature conditions, in developing city master plans, building projects, proposals for expansion, reconstruction and technical re-equipment of enterprises, in developing of the schemes of engineering protection of territories.

Emergency monitoring is conducted in order to obtain objective data for assessing the state of technological and nature safety of the territory of the state, its regions, settlements and strategic objects, analysis of the causes and conditions of occurrence, forecasting, development of preventive measures [1,3].

During 2017, 166 emergencies were registered in Ukraine, which, according to the National Classifier «Emergency Classifier» DK 019: 2010, were allocated to:

technological character - 50; natural character - 107; social character - 9.

As a result of this emergencies, 172 people (including 29 children) were killed and 892 people were injured (including 417 children).

The magnitude of the emergencies that arose in 2017, were divided into:

- state level - 2;
- regional level - 8;
- local level - 69;
- object level - 87.

Compared to 2016, the total number of emergencies in 2017 increased by 11.4%, while the number of man-made emergencies decreased by 10.7% and the number of natural and social consequences increased by 20.2% and 125%, respectively. Also, there is a decrease in the number of deaths and injuries in the National Assembly in 2017 - by 6% and 50.6%, respectively [2].

Table 1.

Quantitative indicators of emergencies occurring in 2017 compared to 2016

Emergency data	2016	2017	Decrease (increase), inpercentages
Totalnumberofemergencies	149	166	+ 11,4
including:			
Technological character	56	50	- 10,7
The nature character	89	107	+ 20,2
Social character	4	9	+ 125,0
including levels:			
Statelevel	1	2	+ 100,0
Regional level	9	8	- 11,1
Local level	64	69	+ 7,8
Object level	75	87	- 16,0
People died due to the emergencies	183	172	- 6,0
People injured due to the emergencies	1805	892	- 50,6
Material lossesdue to the emergencies, ths. UAH	265 306	896 804	+ 238,0

An increase in the number of emergencies happened due to an increase of the share of emergencies by 43%, which is associated with especially dangerous infectious diseases of farm animals (African swine fever), while the number of emergencies associated with infectious disease and poisoning of people decreased by 13%. In 2017, an increase in the number of emergency situations associated with fires in natural ecosystems (more than 2.7 times) and meteorological emergencies (by 17%) was recorded.

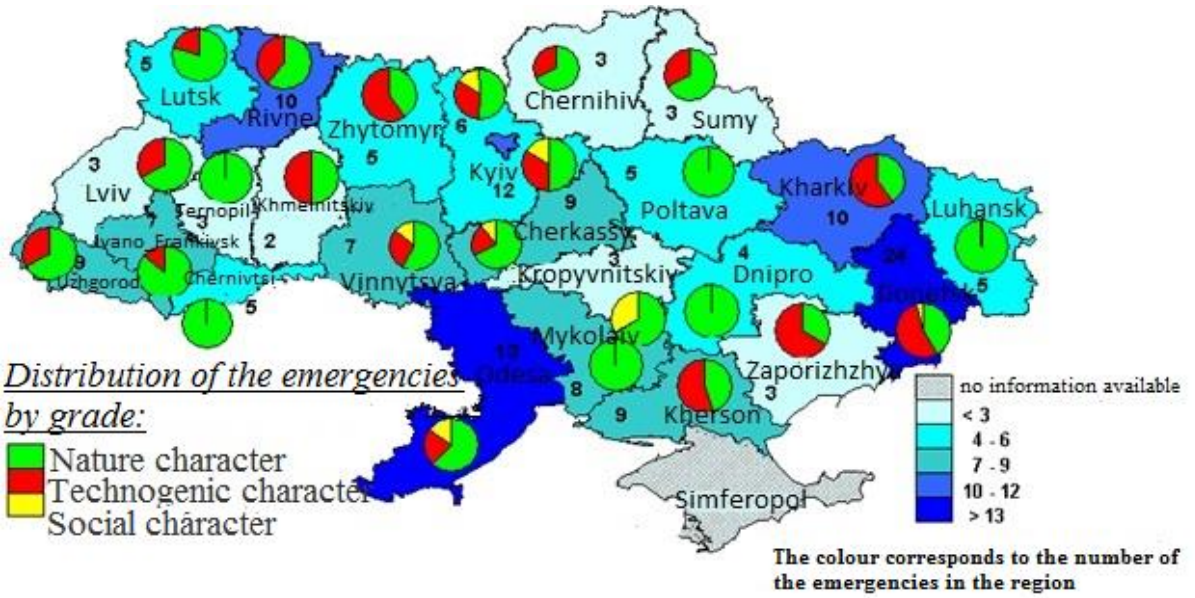
The increase in the number of the emergencies of social character, the victims and those affected by them is due to an increase in the number of accidents with people, including due to the effects of dangerous natural phenomenon (lightning) and neglecting of the safety rules on water objects

At the same time, a decrease by almost 39% of the number of emergency situations related to fires and explosions was recorded in 2017. Among other

emergencies, in 2017, the number of the man-made onesincreased by 45.5% due to traffic accidents (16 in 2017 compared to 11 emergencies in 2016) and by 75% due to life support systems failures (7 emergencies in 2017 against 4 emergencies in 2016).

In the regional context, the largest number of emergencies that arose during 2017 was registered in Donetsk (24 emergencies) and Odessa (13 emergencies) regions. There are 12 emergencies registered in Kyiv, 10 in the Kharkiv and Rivne regions, and 9 in the Kherson and Cherkassy oblasts. The smallest number of emergency was registered in the Khmelnytskyi oblast (2 emergencies), 3 registered in the Zaporizhzhya, Kirovograd, Lviv, Sumy, Ternopil and Chernihiv regions [2].

In general, the decrease in the number of emergency situations compared with 2016 recorded in Chernihiv region –by 62.5%, Sumy –by 57.2%,by 50% in Volyn, Dnipro, Kirovograd, Lviv, Poltava, Khmelnytsky regions. Reduce of the number of emergencies has also been registered in Zhytomyr, Mykolaiv, Odesa andChernivtsi regions.

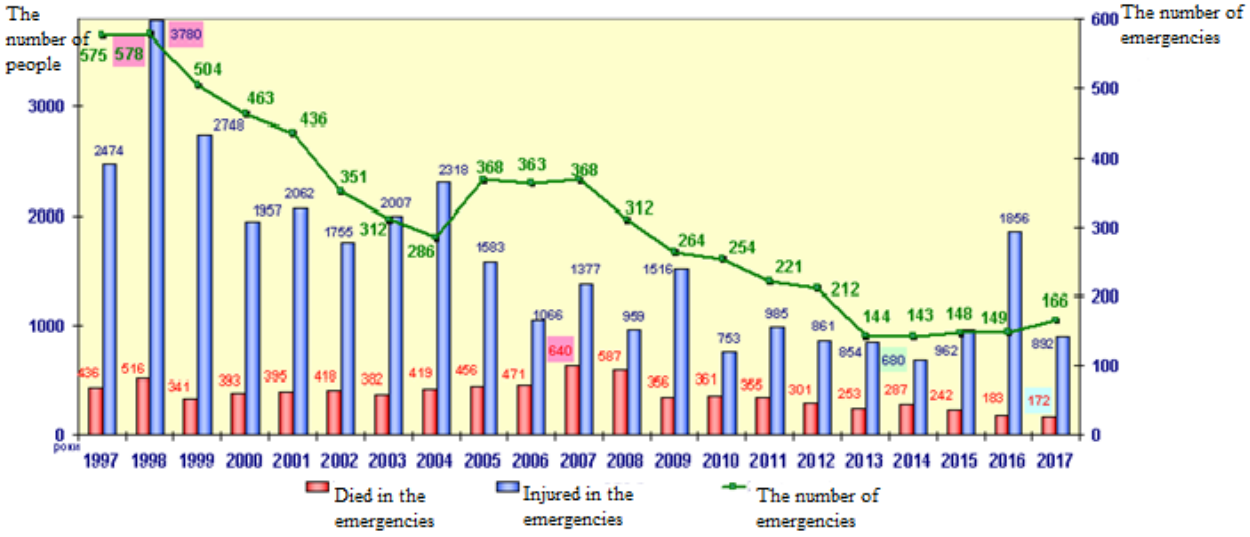


Pic.1. The distribution of the number of emergencies that arose in the regions of Ukraine in 2017

The increase in the number of emergencies compared to 2016 recorded in Donetsk region- for 4 times, Zaporizhzhya and Cherkasy regions - 3 times, Kherson - 80%, Volynregion - 75%, Kiev city - 71.4%, Rivne and Kharkiv regions - by 67%, in Transcarpathian and Ternopil regions - by 50%. Also, an increase in the number of emergencies was registered in the Vinnytsia, Ivano-Frankivsk, Kyiv and Luhansk regions [2].

Emergencies at the state level that arose during 2017 were connected with the threat of the termination of functioning of objects of fuel and energy and industrial complexes (including objects of housing and communal services) due to a shortage of gas resources for consumers in Ukraine. Analysis of the dynamics of the emergenciesshowed that in general, with the exception of the medical and biological

nature of theemergencies, the number of emergencies tends to decrease, in particular, in 2017, the lowest number of deaths in the emergencies and the smallest number of the ones with an industrial character during the observation period 1997-2017 years.



Pic.2. The dynamics of the emergencies in Ukraine

There has been a tendency towards a decrease in the number of emergencies of anthropogenic character since 2000 (from 276 to 50 emergencies in 2017), while the decrease in the number of deaths has been observed since 2007 (from 640 people to 172 in 2016).

At the same time, the level of risks of natural and man-made character emergencies and the risks of losses from them remain almost still and quite high for most regions of Ukraine.

The main causes of emergencies of natural and man-made character in Ukraine in 2017 were:

• non-compliance with fire safety rules and ignoring requirements of traffic rules;

• violation of health standards and low level of control over the implementation of anti-epizootic and anti-epidemic measures;

• obsolescence of fixed capital and the despair of a large part of the utilities networks [1,4];

• abnormal manifestations of atmospheric processes, etc.

In order to increase the level of industrial and ecological safety of potentially and technologically hazardous industries and reduce the level of risk of emergencies at the state level, it is necessary:

1. To carry out the transition to the analysis and management of man-caused risks as the main system of regulation of the safety of Ukrainian population and territory, which will ensure the overcoming of the negative tendency of the increase in the number of emergencies of anthropogenic character.

2. Its modernization is important in the process of further development of the national economics. It involves the restoration of the lost economic positions of the state and ensuring the growth by at least 5% per annum for the next 10 years, which

requires significant intensification of structural and investing activities (dynamic aspect). It is also important to modernize themanufactures, the development of a fundamentally new strategy for technological modernization.

3. To create a holistic interagency system of integral monitoring and forecasting of emergencies, which would include the organization of the center for the reception and processing of the information coming from different systems and executive authorities.

4. To increase the efficiency of work of the state supervision bodies on the condition and functionalizing of potentially hazardous manufactures in order to significantly limit their activities and reduce the level of danger due to a more accurate assessment of the remaining resources, reducing inter-repair periods, etc.

5. A complete inventory of privatized objects and their compliance with the requirements of natural and man-made safety, up to nationalization and re-privatization, must be carried out.

6. To make significant investments into the modernization of industrial production, the decommissioning of productive assets that have worked out their resources, the transition to modern safe technologies. This is necessary as a significant part of potentially hazardous production in about to exhaust its resource.

7. Increase investment in measures to prevent, eliminate and reduce the severity of the consequences of emergencies, including development of an economic mechanism for the regulation of the security of population and territories.

8. To introduce higher coefficients of the additional payment for the lease of urban land for environmentally unfavorable production, located on the territory of large cities, with a view to their further economic displacement.

References

1. Lapin V.M Safety of vital activity. [Electronic resource] Document access mode: http://pidruchniki.ws/12210605/ bzhd/bezpeka_ zhittyediyalnosti_lyudini_-_lapin_vm.

2. Official information portal of the Ministry of Emergencies of Ukraine. [Electronic resource] Document access mode: http://www.dsns.gov.ua/ ua/ Dovidka-za-kvartal/72899.html.

3. On approval of the Regulation on monitoring of potentially hazardous objects of the Ministry of Emergencies of Ukraine; Order, Provision dated November 6, 2003 No. 425. [Electronic resource] Mode of access to the document: http://zakon2.rada.gov.ua/ laws/show/z1238-03

4. Steblyuk M.I. Civil defense and civil protection. [Electronic resource] Document accessmode: http://pidruchniki.ws/15840720/bzhd/tsivilna oborona_ta_tsivilniy_zahist_-_steblyuk_mi.