Modern Methods of Forecasting Emergency Situations

Abdurakhmanov Jahangir Sherali O'g'li

Teacher of the "Technological education" department of TerDU

ABSTRACT

The number of emergency situations is increasing year by year. As a result of natural, man-made and environmental emergencies, about three thousand people die in our country every year, and more than ten thousand are injured in various degrees, and this figure is increasing. This shows the need to prevent and eliminate emergency situations. The following article will be devoted to the improvement of emergency forecasting methods.

Literature Analysis and Methodology

The Global Assessment Report (GAR2022), released by the United Nations Office for Disaster Risk Reduction (UNDRR) in May ahead of the Global Platform for Disaster Risk Reduction, shows that every year between 350 and 500 Small and large-scale disasters have occurred. In the last twenty years, the number of natural disasters is expected to reach 560 per year or 1.5 per day by 2030. It can be seen that the number and scale of emergency situations is increasing. One of the effective ways to prevent and eliminate these problems is to improve and effectively use the emergency forecasting and database [5].

Prediction of emergency situations Prediction of emergency situations is usually aimed at determining its occurrence and possible consequences. Laws of territorial distribution for predicting emergency situations and various processes and events occurring in animate and inanimate nature are manifested in time.

prediction is information reflecting the probability of the occurrence and development of dangerous natural and man-made processes and events leading to emergency situations [7].

Prediction is a scientifically based decision about possible conditions of the object in the future and (or) other methods and terms of their achievement. The prediction of the risk of emergency situations (emergency situations) in the territory of our country is mainly carried out by the Ministry of Emergency Situations and in cooperation with other federal agencies on a scientific basis.

According to the data, emergency forecasting reflects the likelihood of occurrence and development of emergency situations based on the analysis of their causes, past and present sources. The main goal of emergency forecasting is to prepare preliminary data for decision-making, to identify all emergency situations that may occur in this area, their probability of occurrence, and to assess the probability of occurrence of emergency situations and their consequences[2].

The following types of predictions are distinguished during the prediction period:

- operational or current; usually, it is calculated for the time when significant quantitative or qualitative changes in the research object are not expected.

- short-term (from 1 month to 1 year); usually quantitative changes.

- medium term (from 1 to 5 years); the intermediate interval occupies the situation between short-term predictions and long-term predictions;

- long-term (from 5 to 15 years); it is distinguished not only by quantitative, but also qualitative changes;

- long-term (more than 15 years); usually, taking into account the perspective of the object of prediction, significant qualitative changes are expected. Prediction of emergency situations is closely related to prediction in other areas of modern society.

There are four areas of forecasting: strategic, operational-tactical, economic, and technical.

The main factor of the comprehensive and rapid introduction of forecasting into the management of the organizational and technical systems of the FVV is the continuous growth of the complexity of the management objects and the management system itself. In this case, prediction aims to "rebuild" the control system for desired actions, or to adopt and implement proactive control actions. Different types of forecasting are used, each of them is characterized by a specific method of forecasting. Usually, with long-term forecasting (development of a new system) 5-15 years ago, extrapolation and modeling are mainly used, long-term (more than 15 years) the method of questioning experts is often used. Currently, more than a hundred proprietary forecasting methods have been developed. These different methods make it difficult to justify their use in solving specific problems that arise in practice. As a result, the problem of classification, evaluation and selection of forecasting methods remains very relevant in today's realities. Based on this situation, several approaches are used, and therefore there are several options for classification of predictive methods that take into account different characteristics of classification [1].

If you choose the characteristic of the source of information used in the construction of forecasts as the main feature in the analysis of these methods, then all forecasting methods are divided into two large classes:

Factographic and heuristic methods.

The methods of the first class are based directly on concrete materials, mainly on concrete quantitative data. The main factographic methods of forecasting: statistical forecasting method (based on the construction and analysis of dynamic series of characteristics of the forecasting object and their statistical relationships).

Predictive extrapolation (predictive function selection is based on mathematical extrapolation, taking into account the conditions and limitations of the object development). Predictive interpolation (based on mathematical interpolation that takes into account the conditions and limitations of the selection of the interpolation function). Prediction of a function with an adaptive structure (based on the use of an extrapolation function, the appearance and parameters of which are selected from a certain number of possible functions during the retrospective analysis of the initial dynamic sequence) [8].

Exponential softening method (based on the use of an extrapolation function with the help of an exponential decrease of its coefficients). The method of harmonic scales (the points of this line

Based on the extrapolation of the moving trend estimated by line segments with weighting using harmonic scales). Regression prediction method (based on the analysis and application of stable statistical relationships between argument variables and the function of the predictive variable).

Autoregression forecasting method (a method of forecasting stationary random processes built on the analysis and application of the correlation of dynamic sequential values with a fixed time interval between them). Factor prediction method (based on processing multidimensional information about op in dynamics using factor statistical analysis apparatus or its types). The method of group calculation of arguments (based on approximation of the type and parameters of the predictive function of the initial dynamic sequence with optimization).

The method of Markov chains (based on the analysis and use of the probability of the transition of the heating object from one state to another).

The method of historical similarity (based on the identification and use of the similarity of the object of prediction with the same object in nature).

The method of mathematical similarity (based on the similarity of mathematical descriptions of different developmental processes, then using the mathematical description of one of them to prepare predictions of another).

The method of forecasting based on advanced information (based on the use of scientific and technical information in social practice before the implementation of scientific and technical achievements).

Patent forecasting method (based on the assessment of inventions and discoveries and study of their dynamics) [6].

Results

Emergency forecasting is important and relevant. Analyzing the prediction of emergency situations, we studied the sets of factographic and heuristic methods. Factographic methods: based directly on concrete materials, mainly on concrete quantitative data. Statistical forecasting method (based on the construction and analysis of dynamic series of characteristics of the forecasting object and their statistical relationships). After studying these methods, it was found that the most effective method for predicting emergency situations is factographic.

Conclusion

To sum up, prevention of emergency situations, reduction of their consequences, provision of a peaceful and safe life of the population, and achievement of the strategic goals of the country's development are of great importance. Disaster forecasting is a complex process. Prediction of emergency situations is carried out based on monitoring data. The more correct and accurate the information, the more accurate the prediction. Data is collected as a result of tracking, it can be in the form of images, videos, statistics, text and other forms. There

are some difficulties in collecting these data, they require constant monitoring, the use of modern technology is more effective, the large number of objects of observation, and the cost of the used techniques. But even if these things require a lot of effort and a lot of money, it is better and more useful to prevent an emergency.

References

1. I.Nigmatov, M.Tojiyev.Favqulodda vaziyatlar va fuqaro muhofazasi. Darslik –T 2011.
2. В. А. Немтинов. Ю. В. Немтинова. Ж. Е. Зимнухова —Прогнозирование чрезвычайных ситуаций‖ Москва 2014 г.
3. J.Abdurahmonov, N.Saidho'jayeva, S.Holiqov. Favqulodda vaziyatlarda xarakat qilish va ularning oldini olish chora tadbirlarini o_qitishning dolzarbligi. —Mehnat va kasb ta'limi bakavriat yo'nalishlarida texnik fanlarni o'qitishning dolzarb muammolari‖ Respublika ilmiy-texnik anjuman materiallari. 23-24 aprel 2019 y. 150 bet.
4. А. М. Яхёхўжаева, Н. С.Саидхўжаева. Замонавий шароитларда фавқулодда вазиятларда бошқариш ва режалаштириш тамойиллари ва усуллари. Academic Research in Educational Sciences Volume 3 | Issue 2 | 2022 ISSN: 2181-1385
5. A.Qosimov, J.Abduraxmonov. Favqulodda vaziyatlarni prognozlashning hayot faoliyati xavfsizligida tutgan o'rni. —Hayot faoliyati xavfsizligini ta'minlashning dolzarb muammolari va sohada innovasion texnologiyalarning o'rni‖ mavzusidagi Respublika ilmiy-amaliy seminar materiallar toplami. 2021 yil
6. Shomirzayev M. K. Developing Educational Technologies In School Technology Education //Next Scientists Conferences. – 2022. – С. 14-23.
7. Шомирзаев М. PEDAGOGIK MAHORAT: ЎЗБЕКИСТОН РЕСПУБЛИКАСИ ИЖТИМОИЙ-ИҚТИСОДИЙ СОҲАСИ РИВОЖЛАНИШИДА МИЛЛИЙ

ҲУНАРМАНДЧИЛИКНИНГ АҲАМИЯТИ //ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz). – 2020. – Т. 2. – №. 2.

8. Shomirzaev M. K. Factors in the development of national art. – 2020.

9. U.S.Eshaliyev. "PSYCHOLOGICAL-PEDAGOGICAL OPPORTUNITIES OF NATIONAL CRAFTS OF SCHOOL PUPILS" In Volume 7, Issue 10, of JournalNX- A Multidisciplinary Peer Reviewed Journal, Oct. 2021,

10. U.S.Eshaliyev. "THE FUTURE OF COMPUTER SCIENCE TEACHER COMPETENCE OF NURTURING THE TECHNOLOGY IMPROVEMENT" ISSN: 2776-0979, Volume 3, Issue 2, Feb., 2022

11. U.S.Eshaliyev. " Professional Competence of a Computer Science Teacherdiagnostic Methodology" Vol. 02 Issue 04 (2022):EJINE

12. www.fvv.uz

13. **www.ziyonet.uz**

14. https://www.undrr.org/gar2022-our-world-risk