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EMERGENCY PREVENTION MEASURES

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Abstract:
This article aims to improve the existing system for the prevention of emergency situations related to floods and landslides in Uzbekistan, to increase its efficiency using the possibilities of modern information technologies based on innovative approaches, to protect the life and health of the population from possible emergency situations.

Keywords: Floods, floods, inundation, material losses, danger, human casualties, damage to the natural environment, destruction.

FAVQULODDA VAZIYATLARNI OLDINI OLISH CHORA-TADBIRLARI

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Toshkent viloyati Favqulodda vaziyatlar boshqarmasi Chirchiq shahar “Hayot faoliyati xavfsizligi o’qitish markazi” o’qituvchisi

Annotatsiya:
Ushbu maqolada O‘zbekistonda sel-toshqin va ko‘chki hodisalari bilan bog‘liq favqulodda vaziyatlarning oldini olish bo‘yicha mavjud tizimni takomillashtirish, innovatsion yondoshuvlar asosida zamonaviy axborot texnologiyalari imkoniyatlaridan foydalangan holda uning samaradorligini yanada oshirish, yuzaga kelishi mumkin bo‘lgan favqulodda vaziyatlardan aholining hayoti va sog‘lig‘ini muhofazalashga qaratilgan.

Kalit so‘zlar: Sel, suv toshqinlari, suv bosishi, moddiy talofatlar, xavf-xatar, odamlarning qurbon bo‘lishi, atrof tabiiy muhitga zarar yetishi, vayronagarchiliklar.

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Introduction

The geographical location, climatic features and complexity of the relief of the Republic of Uzbekistan create conditions for the occurrence of natural phenomena such as mudflows, floods, avalanches and earthquakes. At the same time, such emergencies pose a serious threat not only to the environment and economy, but also to human life and health. In recent years, due to factors such as global climate change, population migration to mountainous and foothill areas, disruption of the ecological balance, narrowing of the natural beds of rivers and streams, and increased urbanization processes, the frequency of recurrence and harmful consequences of mudflows and floods have been increasing.

The Government of the Republic of Uzbekistan has developed a number of legal and regulatory documents aimed at preventing such natural disasters and reducing their negative consequences, special programs, maps and monitoring systems have been established. However, work in this area requires constant improvement and the active introduction of modern technologies, including satellite monitoring, meteorological forecasts and digital information systems.

As a result of landslides and floods, significant damage is caused not only to infrastructure and housing, but also to the environment, agricultural lands and biodiversity. Ensuring the safety of the population, warning them about emergencies, and increasing the level of preparedness for such disasters have become an important and urgent issue. This article analyzes existing approaches to preventing emergencies related to landslides and floods in the republic, proposals based on modern technologies, and effective protective measures.

Protection from the threat of landslides and floods is one of the urgent tasks in the republic. Therefore, potentially dangerous areas have been studied, special maps and legal regulatory documents have been developed in the field. The number of people living in dangerous areas has been determined and measures are being taken to temporarily and permanently relocate them. Floods and floods, which lead to natural emergencies, are one of the most frequent phenomena in the regions of our republic. Floods are defined as the inundation of large areas of land and water resulting from the rising water level of a river, lake, canal, or sea. They are observed more often in the spring and pose a high risk not only to human life, but also to residential areas and industrial facilities. Therefore, it is advisable to implement measures to prevent and reduce the impact of floods in advance.

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In order to ensure the timely implementation of such measures in our republic, legal and regulatory documents have been adopted.

The history of human development is associated with natural disasters and man-made disasters. Ensuring the interests of man, his dignity, health and safety - occupies an urgent, priority and important place in all aspects of our daily life.

Various emergency situations lead to human casualties, damage to their health or the environment, serious material losses and disruption of people's living conditions.

Of the natural disasters that may occur in our republic, we pay special attention to floods, floods, snow and landslides, since the geographical location and climatic conditions of the territory of Uzbekistan create the conditions for the occurrence of floods, snow and landslides, floods and landslides.

In order to timely and effectively organize work to protect the population and territories from emergencies associated with floods, mudflows, avalanches and landslides, as well as to promptly eliminate their possible consequences, the Resolution of the President of the Republic of Uzbekistan “On measures to prevent emergencies associated with floods, mudflows, avalanches and landslides and eliminate their consequences” and the “Regulations on the procedure for organizing work to prevent emergencies associated with dangerous hydrometeorological and geological phenomena and eliminate their consequences” and “Ensuring the safe passage of flood waters and mudflows, reducing the risk of avalanches and landslides” determine the functions of local authorities in preventing emergencies associated with floods, mudflows, avalanches and landslides and eliminating their consequences was given.

Since the dawn of humanity, natural disasters have always threatened its life. Man and nature are closely intertwined.

Floods have always caused panic among the population living in mountainous and foothill areas. In the past, people explained them as the work of sorcerers, the evil deeds of ghosts, the fierce anger of the gods. They also knew that an earthquake, volcanic eruption, heavy rain in the mountains or a sharp melting of snow in the summer months could signal the beginning of mudflows coming from the mountains. A flood, like a herd of rabid wild horses, sweeps away everything in its path - fields, pastures, villages and entire cities. Where the flood has passed, only desert remains.

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This type of natural disaster, which means a violent mountain stream in Arabic, sil, seilyun - a torrential mountain stream, in English mudflow, mudavalanche, rocmudflow - a mudflow, a rock-mud flow, in French torrents, mure - a mountain stream, in German - wildbach, mure - a wild stream, a mudflow, in Japanese yamatsunami - a mountain wave, is not alien to our republic.

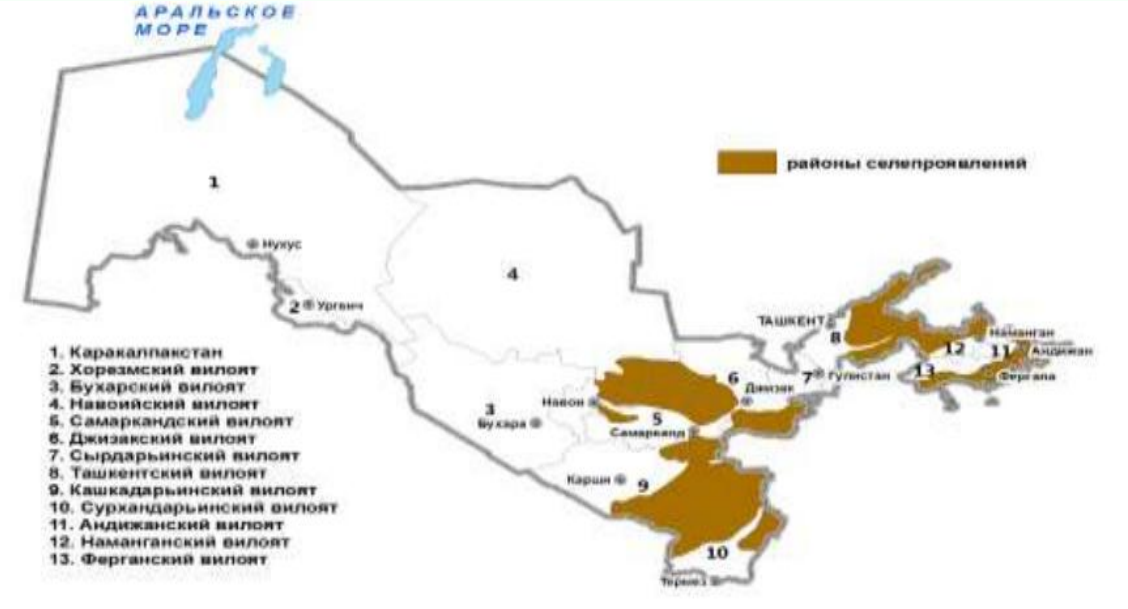
Such events are repeated on Earth every year, causing a lot of destruction and loss of life.

Almost all mountainous and foothill regions of the Republic of Uzbekistan are included in flood hazard zones. Floods occur more often in Tashkent, Surkhandarya, Jizzakh, Fergana and Namangan regions than in other places.

According to the Center for Monitoring and Forecasting of Emergency Situations, while April accounts for 27% of flood activity, this figure is 33% in May and 17% in June. The risk of flooding remains in the Fergana Valley even in August.

The specialists of the Uzhydromet Center have studied the dangerous areas of our republic where there is a possibility of flooding and mudflows, and special maps have been developed. From this map, we can see that such a risk is high in Andijan, Jizzakh, Kashkadarya, Surkhandarya, Navoi, Syrdarya, Namangan, Samarkand, Fergana and Tashkent regions. Therefore, in order to prevent possible floods and mudflows in these regions and to safely pass them, annual work is organized to clean the riverbeds and strengthen the banks of rivers and streams.

Map of areas prone to flooding and mudslides



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There should be maps at a scale of 1:10,000. It is necessary to develop measures to combat, prevent, predict and eliminate the consequences of flash floods using these maps, and to launch awareness-raising campaigns among all segments of the population.

Regardless of the region in which flash floods occur, their composition, direction and damage are almost the same. Therefore, the times require that all citizens actively participate in the positive measures taken by our government, implement them as soon as possible, and that each of us be responsible for implementing safety measures. The flash flood that occurred in Shahimardan on the night of July 7-8, 1998, is still fresh in the minds of our compatriots. At that time, a sharp increase in temperature caused the rapid melting of snow, followed by a flood of 200 m3 per second. A 15 km long gas pipeline, a 14 km long highway, 4 bridges, a 3 km long drinking water pipeline, a 3 km long power transmission line, and a 34,741 m long telephone network were out of order. 14,200 people had to be evacuated to safer places.

Areas where a flood occurs or is likely to occur are called floodplains. The main indicator of the occurrence of a floodplain is hydrometeorological conditions. As a result of prolonged heavy rainfall and rapid melting of glaciers in a short period of time, the amount of water in riverbeds increases sharply. As a result of the emergence of a powerful current, a lot of destruction occurs in the lower parts of the area. Mudflows are divided into turbulent and structural types according to the nature of their movement.

Turbulent mudflows occur along the bed, in accordance with the law of flow movement, as a result of an increase in the amount of water in rivers and streams. Structural mudflows occur across the field, as a result of the mass of various rock fragments falling on the entire slope.

Unlike ordinary flows, mudflows do not move as a continuous stream, but in the form of separate waves. They also carry hundreds of tons, and in some cases millions of cubic meters of viscous mass. The size of individual rock fragments reaches 3-4 meters in cross section. After the mudflow encounters an obstacle, it overcomes them and becomes even stronger.

In our republic, as of 2018, May continued with heavy rainfall in Uzbekistan. As a result, many regions of the country were flooded with water and mudslides. The government and local authorities took measures to eliminate the consequences of the natural disaster and provide assistance to the affected population. For

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example, in 2008, the damage caused to citizens as a result of a flood in the Ingichka village of the Bulungur district of the Samarkand region was very sad.
On February 20, 2012, heavy rains in the mountainous areas of Gallaorol and Forish districts of Jizzakh region caused damage to the "Qorasuv" reservoir structure.

Figure 1. Houses washed away by floods in our republic

On May 14, 2012, heavy rainfall caused a flood in the Kitab district of Kashkadarya region, flooding four households in the Jillisuv settlement. About 200 households were damaged in the Kitab district, and the flood
washed away more than 120 livestock.
On April 19, 2022, heavy rainfall caused a flood in the Forish district of Jizzakh region, damaging agricultural crops and settlements.
According to the Center for Hydrometeorological Service, the rain that fell in Samarkand and Jizzakh regions in one hour and thirty minutes on April 20 amounted to a month's worth of precipitation.

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Causes of floods. Heavy and continuous rainfall, active melting of snow and glaciers as a result of rising temperatures, large amounts of soil falling into riverbeds, earthquakes and human activity are the causes of floods.

Protective measures. The large number of factors involved in the formation of floods makes it difficult to predict them in time. However, it is possible to predict the beginning of the flood season. Almost all flood-prone areas are well known to specialists and local residents. Each region also has its own statistics on the causes of floods. For example, floods in mountainous areas are caused by heavy rain and snow (85%), melting snow (6%), overflowing of water from mountain lakes (5%), and bursting of natural dams (4%).

Population movement. As mentioned above, floods are seasonal processes, so it is necessary to comply with certain requirements for activities in areas with a high risk of flooding at this time. In many cases, a certain part of the population tries to spend their vacations in mountainous areas, along rivers. This is not without reason, of course. However, before setting up a temporary tent on the banks of the river, it is necessary to consider the natural conditions, relief, and structure of the environment, and then determine the place of stay. A gradual increase in the amount of precipitation is the first signal that it is necessary to urgently change the place of stay. Because an increase in the amount of water in rivers and streams causes excessive anxiety for vacationers. If in such a situation, signs of flash floods appear, it is necessary to quickly move as far away from the riverbed as possible, to a higher slope.

Flood disasters are common in various places, including Uzbekistan. For example, on May 13, 2017, heavy rainfall was observed in Tashkent. As a result, the streets and squares of the city, as well as roads between neighborhoods, were flooded.[6] Such situations are often observed in Surkhandarya, Kashkadarya, Jizzakh, Fergana and other regions of our republic.

According to the press service of the Ministry of Emergency Situations, over the past 100 years, more than 2,500 floods and mudflows have been observed in the territory of the Republic of Uzbekistan.

Due to flooding, the walls of houses are damaged, and the moisture content exceeds the norm, which weakens the structures, as a result of which buildings can collapse under the influence of even small external forces. It is necessary to create separate walkways from areas where water has accumulated.

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It can be noted that without fully solving the above-mentioned problems, it is impossible to prevent emergencies related to floods and landslides in the republic in a timely manner and minimize their negative consequences. Therefore, taking into account the experience of foreign countries, it is necessary to improve the existing system for preventing emergencies related to floods and landslides in Uzbekistan, further increase its effectiveness using the capabilities of modern information technologies based on innovative approaches, and in order to protect the life and health of the population from possible emergencies, during the season of the year when floods and landslides are likely to occur, it is necessary to start broadcasting video clips, advertisements and presentations prepared by the media on the protection and warning of the population from emergencies related to floods and landslides on all television channels.

Conclusion

The existing system for preventing and eliminating emergencies related to floods, landslides and landslides in Uzbekistan is achieving certain achievements. In the event of emergencies in the regions, taking prompt measures, delivering warning signals to the population, evacuating citizens living in dangerous areas, and other important actions are of priority. This problem requires an integrated approach. In this process, the joint efforts of government bodies, civil society institutions, scientific institutions and international partners are of great importance.

Taking into account the advanced experience of foreign countries, monitoring, forecasting and risk assessment systems based on innovative information technologies have been improved in Uzbekistan. The possibilities of rapid analysis of data obtained through special maps, digital geodata, satellites and real-time warning of the population have been enhanced. At the same time, regular awareness-raising work is being carried out among the population on the causes, consequences and protective measures against floods and landslides. It is also important that every year, on the eve of the season when floods and landslides are likely to occur, video clips, warning advertisements, presentations are prepared and broadcast on television and social networks. Only through such an approach can we achieve the preservation of the life and health of the population, the reduction of material losses and the minimization of damage to nature.

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