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CAUSES OF FLOODS AND FLOODS AND THEIR RAILWAY AND ECONOMY INFLUENCE ON CONSTRUCTION

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Abstract: This article discusses the issue of methods of ensuring safety in emergency situations of a natural nature in railway transport, settlements and infrastructure of the mountainous regions of the Republic, about landslides occurring in the mountainous and mountainous regions of the Republic, leading to road destruction. Especially when transporting dangerous goods by different modes of transport. The article considers the issue of natural emergencies that occurs in the spring and autumn seasons, resulting in mudflows, landslides and landslides, where the railways pass, settlements and other infrastructures are located.

Keywords: Landslide, mudflow, hazardous cargo, collapse, loose soil.

Introduction. The problem of protecting mountainous regions, settlements, railways, highways from natural disasters is an actual problem in the Republic.

Emergency situations can affect all types of transport communications, settlements and other infrastructure of the area. These are heavy snowfalls, avalanches, floods, torrents, avalanches, landslides. The above situations can lead to transport accidents, the destruction of buildings and structures with high material costs than the death of the population, and therefore the lines and facilities of the railway (Fig. 1).

Methodology & empirical analysis. A flood (from the Arabic سل - "turbulent flow") or flood is a rapid flow of water consisting of a mixture of water, mud and rock fragments that suddenly appears in the basins of small mountain rivers. The main feature of such flows is the high saturation of compacted material from 10 to 75% of the volume of the moving mass. As a rule, the occurrence of flood flows is associated with heavy precipitation, rapid melting of snow or the overflow of mountain lakes. Flood flows are a short-term phenomenon (usually lasting a few hours or less than a day), typical of small streams with a length of 25-30 km and a catchment area of several km² [4].

Figure 1. Consequences of flood flow affecting the infrastructure of the settlement.

The speed of flood flows can reach up to 5 m/s on average, and in some cases up to 10-15 m/s, which causes their great destructive effect. Along the way, streams carve deep channels and usually contain dry or small streams. Alluvial materials were deposited in intermediate accumulation zones, alluvial fans, intermontane basins, and foothills.

Flood flows are characterized by the advance of its front in the form of a shaft of water and sediment, or the presence of axes that often move in series. The passage of the flood flow is accompanied by a significant reformation of the channel.

Flood flows are caused by heavy and long-lasting rains, rapid melting of glaciers or seasonal snow cover, and also by the fall of large amounts of loose rock material into the channel.

In mountainous areas, deforestation can be a decisive factor - the roots of trees hold the topsoil, which prevents the flow of floods.

Sources of flood flows - a potential source of flood flows - a portion of a flood channel or flood basin with a significant amount of loose fissured soil or conditions for its accumulation, where flood flows occur under certain flood conditions.

A flood gully is a linear morphological formation, usually composed of an insignificant thickness of weathering crust, crossing rocky, sodic or forested slopes. Flood cracks are small in length (rarely more than 500–600 m) and deep (rarely more than 10 m).

Floodplains are larger than floodways, and their longitudinal profiles are smoother than floodways. The maximum depth of flood flows reaches 100 m or more; catchment areas of flood flows can reach several km². The volume of soil removed from the flood section in one flood flow can reach several million m³ (Fig. 2.).

Figure 2. Post flood situation.

The onset of spring floods in the Syrdarya and Amudarya basins, the main water arteries of Uzbekistan, poses a risk of regular flooding of the republic's agricultural crops and settlements. According to forecasters, in the next 10-15 years, a steady warming trend (annual increase in average temperature) will lead to an increase in precipitation, which will lead to an increase in the number of floods and increased mudslide activity.

Results. Territorial departments of the state system of warning and action in emergency situations (FVDT) begin to eliminate the consequences of the flood flow (Fig. 3).

Seismogenic flood flows. As a result of earthquakes, broken pieces of glaciers or fallen rock masses can block rivers and form unstable dams. When such a dam is breached, water is released from it instantaneously rather than gradually, which leads to the accumulation of high kinetic energy by the flow.

Such cases occur in the mountainous regions of our Republic ("Kamchik" pass, "Hisar" mountain, where the Angren-Pop and Tashguzar-Kumkurgan railway lines pass).

Figure 3. Consequences of floods.

Dependent and independent flows.

Bounded streams include mud-rock streams in which the water practically does not separate from the solids. They have a large volume weight and great destructive power.

Water-rock flows are classified as non-coherent. Water drains the siltstone material and, as its velocity decreases, collects it in a channel or cone area in the foothills.

According to the degree of sediment saturation and their fractional composition, flood flows are divided into the following zones:

1. Zone of origin (nutrition),
2. Transit zone,
3. Accumulation zone.

Figure 4 shows the areas where railways pass through and where settlements are located.

Figure 4. Steel constructed in areas with high flood risk road structures (bridges).

Flash floods can cause great destruction. To fight against floods, soil and plant cover is fixed, and special hydrotechnical structures are built.

According to the purpose, the following types of flood protection structures will be built:

A. Flood control: concrete, steel, reinforced concrete and stone dams: culvert, through (sluice), through mesh; dams made of ground materials (flood).

B. Carrying flood flow: canals, ditches.

V. Guiding and blocking dams, structures that divert the flood.

G. Stabilizer: dam, soil, rock; gabion terraces; terraces-channels; hill and drainage channels; protective walls, drainage devices, agroforestry.

D. Flood prevention factors are flood control dams that create flash floods; culverts at lake crossings.

The use of certain methods of control is determined depending on the location of the protected object in the flood basin, the extent and frequency of flood flows. At the beginning of the process, preventive measures are taken to prevent the flood or to reduce its effect. The most radical means is to plant forests on the slopes of mountains with high flood flow. The forest regulates the flow, reduces the water mass, cuts the currents into separate weakened jets. It is not allowed to cut down the forest and destroy the lawn in the catchment area. Here, it is desirable to increase the strength of the slopes by terracing, to block and divert water through mountain ditches and earthen ramparts.

Dams have the greatest impact on flood flows. These stone and concrete structures placed along the channel reduce the flood flow and remove some of the solid material in it. Half dams divert the current towards the shore, making it less prone to breaching. Flood traps are used in the form of pits and pools laid in the flow path; retaining walls are built to protect the canal banks from erosion and to protect buildings from the force of the flood flow. Diversion of dams and flood storage is effective. Dams direct the flow in the right direction and weaken its effect.

In the areas of settlements and separate constructions located in the flood zone, water diverting channels are installed to divert the dams, high stone banks are installed in the riverbeds to limit the spread of the flood flow. Reinforced concrete and stone structures are the most reasonable to protect road structures, allowing flood flows to pass over or under the structures.

On the basis of forecasts, the population should be informed in advance about the danger of landslides, floods, landslides and zones where they may occur, as well as about the procedure for signaling the danger (informing the central and local population). This is the direct responsibility of the employees of the regional "Emergency Situations" Department and the employees of the geological service of the district hokims. Chairmen of neighborhood committees, district civil protection officers, regional emergency department, and heads and duty officers of stations and railway facilities located in mountainous regions are required to be in close contact with the district police officer of the Ministry of Emergency Situations.

Conclusions. Public preparedness in advance reduces the stress and panic effect that can occur when emergency information is sent about an impending threat. Preliminary information on the risk of landslides, flood flows and collapses is obtained from landslide and flood stations, parties and posts of the hydrometeorological service. It is important to get this information to the destination on time.

Informing the population about natural disasters is carried out in the prescribed manner through sirens, radio, television, as well as local and special warning systems that directly connect hydrometeorological service units, services of the Ministry of Emergency Situations.

Early evacuation of people, farm animals and property to safe places is organized if there is a risk of landslide, flood or collapse. Therefore, in mountainous areas, duty stations are also warned. If there is no advance warning of the danger, and if the population is warned about the danger before the natural disaster begins, or if they themselves notice that it is approaching, everyone should make an emergency exit to a safe place without thinking about their property. At the same time, it should warn all people about the danger.

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CONTENTS

PRIMARY PROCESSING OF COTTON, TEXTILE AND LIGHT INDUSTRY