



**ON IMPROVING THE LEVEL OF INTERACTION, TRAINING AND
EQUIPMENT OF RESCUE FORCES, TAKING INTO ACCOUNT THE
CHALLENGES ASSOCIATED WITH CLIMATE CHANGE**

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In recent years, climate change has been observed worldwide, particularly in the Republic of Uzbekistan. As a result, the risk of forest fires and power failures has increased.

Due to limited resources for rescue forces and equipment, an analysis of the level of cooperation between rescue teams deployed to extinguish forest fires and respond to emergencies at power supply facilities was conducted. Based on the analysis, proposals were developed to improve the training and equip professional fire and rescue teams of the Republic of Uzbekistan with advanced technologies and modern equipment. These measures enhance the effectiveness of rescue teams and also serve to minimize damage in emergency situations.

Since the 1980s, decades have been getting warmer than previous ones. All continents of the planet have seen an increase in hot days, intensifying droughts, melting glaciers, increased or decreased precipitation, and sharp temperature fluctuations.

Central Asia is classified as an “extremely high level” region in terms of vulnerability to the effects of climate change.

According to experts, in Uzbekistan alone, the average annual temperature has increased by approximately 1.6 degrees over the past 150 years, nearly three times higher than the global average (0.6). And according to preliminary forecasts, by 2040, the temperature increase could increase by another 1.5-3 degrees [1] .

As a result of climate change, there has been an increase in the number of forest fires and accidents at energy supply facilities.

In particular, over the past three years, during the drought, forest fires have occurred in the forested areas of the Tashkent, Jizzakh, Surkhandarya and Kashkadarya regions.

In addition, during the same period of the summer and winter seasons, major accidents in power supply systems occur throughout the republic.

Table 1 presents the main parameters of forest fires and accidents in the power supply system in the Republic of Uzbekistan [2] .

Table 1 – Main indicators of natural disasters

years	Types of emergency situations	if-quality	group of forces and means (average reading for 1 emergency)	avg. cont. liquidation
2023	forest fires	5	50 l/s, 5-6 units of technology.	5-6 hours
	major accidents at	12	10-15 l/s, 3-4 units of	7-8 hours

	power supply facilities		technology.	
2024	forest fires	15	80-100 hp, 8-10 units of technology.	12-14 hours
	major accidents at power supply facilities	22	25-30 hp, 7-8 units of technology	10-12 hours
2025	forest fires	26	150-200 hp, 15-20 units of technology.	16-20 hours
	major accidents at power supply facilities	30	10-15 l/s, 3-4 units of technology	10-14 hours

Natural phenomena require large - scale , comprehensive preventive measures due to their unpredictability.

Since natural disasters cover large areas, their prevention and response require the involvement of rescue forces from various agencies, staffed by professional personnel and equipped with modern technology and equipment.

Comprehensive preventive measures are classified into several stages, are carried out in advance and serve to minimize damage from predicted natural disasters [3] .

Preventive measures aimed at protecting the population and territories from emergency situations are planned annually by the Government Commission for the Prevention and Elimination of Emergencies and its territorial subcommissions.

Planning of comprehensive measures to protect forest areas and increase the sustainability of life support systems is organized based on the results of



monitoring and forecast information by the competent authorities of the functional and territorial subsystems of the State System for Prevention and Action in Emergency Situations (hereinafter referred to as the State System in Emergency Situations) of the Republic of Uzbekistan.

Preventive measures include monitoring forest areas, clearing dead trees, removing debris and grass, removing dead wood, and establishing mineralized strips and water sources for fire suppression. Also, establishing and training firefighting services, restricting public access to forest areas during fire-risk periods, and conducting public awareness campaigns are important measures to protect forests from fires.

Preventive measures to protect energy facilities from emergency situations require a systematic approach to ensure their sustainability, since these facilities belong to high-risk groups for fire safety .

The basis of prevention consists of measures to carry out timely scheduled maintenance and replace process equipment, to prevent the operation of energy facilities in a loaded state, as well as to comply with standard norms and rules aimed at ensuring technical and fire safety.

In addition, the creation of material and technical resources in case of emergency, the provision of reserves of alternative energy sources in case of major accidents, and the provision of emergency response services with equipment and trained specialists create favorable conditions for the performance of tasks as intended.

An analysis of the causes of emergency situations associated with large forest fires and accidents at power supply facilities shows the need to take



measures aimed at improving the equipment, training and interaction of rescue teams to increase their effectiveness in response [4].

Since the procedure for equipping, training and interaction of rescue teams is regulated by legal acts, there is a need for a detailed analysis of the regulatory framework in this area.

An analysis of the current regulatory framework in the area of training, equipping, and interaction of rescue teams shows the following:

the fundamental legislative documents in the field of training and interaction of rescue teams, as well as the protection of the population and territories from natural and man-made emergencies are the Laws of the Republic of Uzbekistan of August 17, 2023 No. 790 “On the Protection of the Population and Territories from Natural and Man-Made Emergencies” and of December 30, 2008 No. 195 “On the Rescue Service and the Status of a Rescuer”;

the procedure for training (registration, certification) of rescuers and rescue teams is determined by the Resolutions of the Cabinet of Ministers of the Republic of Uzbekistan dated July 14, 2014 No. 184 “On measures to implement the Law of the Republic of Uzbekistan “On the rescue service and the status of a rescuer” and dated September 9, 2019 No. 754 “On improving the procedure for preparing the population for actions in emergency situations and in the field of civil defense”;

The issues of organizing the interaction of rescue services and rescue teams are reflected in the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated January 5, 2010 No. 2 “On approval of the regulation on the procedure for involving rescue services and rescue teams in the liquidation of emergency situations”, as well as the Resolution of the Cabinet of Ministers of the



Republic of Uzbekistan dated April 29, 2023 No. 171 “On measures for the effective organization of the activities of the state system of prevention and action in emergency situations of the Republic of Uzbekistan” defines the tasks and functions of ministries, departments and organizations in the field of protecting the population and territories from emergency situations.

In addition, the equipment of rescue teams is approved by departmental guidelines, and the procedure for actions to prevent and eliminate emergency situations is determined by Action Plans for the Prevention and Elimination of Emergency Situations (hereinafter referred to as Action Plans) [5].

Thus, the analysis of the above-mentioned regulatory legal acts of the Republic of Uzbekistan shows that the procedure for equipping, training and interaction of rescue teams is generally regulated by regulatory documents.

At the same time, a detailed analysis of the action plans revealed that they poorly reflect measures for the interaction of governing bodies and forces and resources in the suppression of large-scale forest fires.

And in the measures to eliminate emergency situations at energy supply facilities, the causes of accidents have not been fully addressed, including taking into account climate change.

The above-mentioned shortcomings, in turn, affected the course of emergency response due to limited resources and poor interaction between forces and means.

Taking into account the above, when carrying out measures to protect the population and territories from large forest fires and accidents at power supply facilities, it is considered appropriate to pay special attention to measures to



improve the interaction of forces and means involved in prevention and liquidation.

To increase the effectiveness of the measures taken, it is necessary to classify the events in sequence (stage by stage), taking into account the capabilities of the rescue forces of the territorial and functional subsystems of the State system in emergency situations and the distribution of tasks between them.

The first stage should include preventative measures. Preventative measures should be aimed at preventing emergencies or minimizing damage when they occur.

Preventive measures are carried out under the supervision of authorized bodies, in forest areas - by forestry organizations, and at energy facilities - by responsible enterprises of the energy industry according to the principle of sole management and functional specialization.

The second stage is the elimination of emergency situations, which is carried out taking into account the current situation [6].

In the event of a forest fire, the first line of response should include rescue teams from forestry, the Ministry of Emergency Situations, the Ministry of Internal Affairs, and the water supply service (Uzsuvtaminot). Subsequently, as needed, rescue teams from municipal and technical services, territorial rescue teams, and emergency medical teams will arrive at the fire site.

In the event of major accidents at power supply facilities, emergency response teams from the energy sectors (Ministry of Energy) and fire and rescue forces from the Ministry of Emergency Situations are called in as part of the first response. Further, given the scale of the accident, units from the Ministries of



Public Utilities, Water Management, Transport, and Health may be called in as needed.

As part of measures to eliminate emergency situations, each ministry (department) carries out tasks related to the specifics of its functional activities.

To assess the performance of departmental forces during response to major forest fires and power supply facility accidents, we analyze the training and equipping of rescue teams.

Rescue teams from the Ministry of Emergency Situations, the Ministry of Internal Affairs, the Ministry of Health, the Ministry of Energy, and the Ministry of Water Management are trained at departmental educational institutions in accordance with approved curricula.

Training of the heads of rescue teams of the Forestry Committee, the Ministry of Transport, and JSC Uzsuvtaminot is carried out in training centers for the preparation of the management staff of territorial bodies of the Ministry of Emergency Situations, and the training of personnel of these formations is organized at facilities in accordance with the requirements of departmental acts [7].

In addition, the level of training of rescue teams is assessed during tactical-special, fire-tactical and complex exercises, both individually and with interacting services.

Monitoring of exercises and the emergency response process shows that the level of preparedness of some departmental and territorial rescue units undergoing on-site training requires additional measures aimed at improving the level of personnel training.



For example, departmental fire and rescue units of the forestry sector do not have the skills for parachute training, since the majority of forest areas are located in mountainous and foothill areas.

Territorial rescue teams formed in mountainous and foothill areas do not have the necessary skills to extinguish crown or ground forest fires.

The interaction between emergency response teams of energy agencies and energy consumption facilities is not sufficiently organized.

This factor is primarily associated with the limited capacity of the departments' educational and material base and the shortage of highly qualified specialists in the field of training personnel for departmental rescue teams.

Also, the imperfection of action plans requires adjustments to activities between interacting forces when carrying out measures to prevent and eliminate major emergency situations.

An analysis of emergency response efforts related to forest fires and major accidents at energy facilities shows that the equipment of a number of departmental units does not fully meet modern requirements.

In particular, departmental fire and rescue units of the forestry sector are not equipped with modern fire extinguishing equipment, special equipment, and engineering technology, which affects the effective implementation of fire extinguishing tasks in the first minutes after the fire is detected.

The lack of aviation equipment and firefighting devices in the rescue units of the Ministry of Emergency Situations complicates the fight against fires, especially in large forest areas located in mountainous areas or in areas where there are rivers, lakes and reservoirs.



Emergency response teams of energy sector agencies have limited material and technical resources in the event of major accidents.

Thus, increasing the level of training and equipment of rescue teams at various levels contributes to improving the degree of interaction in emergency situations related to climate change.

Taking into account the above, in order to increase the effectiveness of rescue forces in carrying out rescue and other urgent operations in major emergency situations, it is considered appropriate to carry out the following basic measures:

organization of training (advanced training) of personnel of departmental and facility formations, primarily formations that do not have the training and material base corresponding to modern methods of conducting rescue and recovery operations and the use of advanced rescue technologies in the training centers of the Ministry of Emergency Situations of the Republic of Uzbekistan with the involvement of highly qualified specialists;

equipping departmental rescue and emergency recovery teams with modern rescue (liquidation) equipment and training personnel in the use of these equipment;

conducting comprehensive and tactical-special exercises with the involvement of interacting forces to practice the actions of rescue (emergency recovery) forces and means to eliminate large-scale forest fires and accidents at power supply facilities;

amendments to action plans for the prevention and elimination of emergency situations, taking into account the actual capabilities of the forces and resources



involved in measures to eliminate forest fires and accidents at power supply facilities;

strengthening the material and technical base and emergency reserves in case of emergency situations, taking into account forecasts of natural and man-made sources of danger.

Literature :

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6. Law of the Republic of Uzbekistan No. 195 "On the rescue service and the status of a rescuer".



7. Action plan for the prevention and elimination of natural and man-made emergencies. Tashkent-2020.