



**CONCEPT**  
OF THE USE OF UNMANNED AVIATION TO REDUCE DISASTER RISKS, PREVENT AND  
ELIMINATE EMERGENCY SITUATIONS IN CENTRAL ASIA  
*(initial draft)*

*The draft Concept was developed by experts of the Center for Emergency Situations and Disaster Risk Reduction within the frame of UNICEF Project “Development of unmanned aviation to ensure the safety of the territories and population, including vulnerable groups from disasters for 2020” and will be submitted for consideration of the Regional Forum-Meeting of the Heads of Emergency Authorities of Central Asian countries*

## **Concept**

of the use of unmanned aviation to reduce disaster risks,  
prevent and eliminate emergency situations in Central Asia

The modern world cannot progress without development of innovative information and communication technologies that enable effectively implement a whole range of tasks to protect population and territories from emergencies, and ensure the safety of human life.

Summary of the best practices of the existing systems on protection of the population and territories from natural disasters, man-made accidents and catastrophes shows that the effectiveness of disaster risk reduction and emergency response can be increased through the introduction of advanced technologies, the use of airmobile rescue equipment and equipping units with high-performance technical means.

In the 21st century, many states around the world are intensively developing and using unmanned aerial vehicles. Unmanned aerial vehicles (hereinafter - UAVs) with different aerodynamic schemes and variety of tactical and technical characteristics are used by countries for various purposes. Currently, the choice of UAVs is huge, both demand and supply of their newest designs are expanding.

The success of the use of UAV is associated, firstly, with dynamic development of microprocessor computers, control systems, navigation, data transmission, artificial intelligence.

Achievements in this field allows UAVs to take-off and land in an automated mode, solve difficult and specific tasks, which are in many ways practically difficult to perform, and often impossible by the person himself.

**The main prerequisites for the use of UAVs to reduce disaster risks, prevent and eliminate emergencies in Central Asia are:**

- exposure of territories of the region, which is home to about 80 million people, to almost all types of natural and man-made disasters, including earthquakes, floods, landslides, mudflows, avalanches, drought, extreme temperature, epidemics, dam breakdown and emission of hazardous substances, industrial and household fires;
- Scale-up of negative disaster consequences and accidents. Increasing people's vulnerability to disasters, impedes the successful implementation of strategies, programs and sustainable development plans;
- the need to improve civil protection services responsiveness in case of natural, man-made and transboundary disasters and improvement of response approaches taking into account modern technologies;
- the need for the swift localization of emergency zone and reduce or minimize possible negative effect of hazardous factors;
- the need to ensure safety of rescuers and affected people during the rescue operation;
- the need to improve the interaction of rescue units of Emergency Authorities of Central Asian countries.

Currently, the majority of structural divisions of Emergency Authorities of Central Asia are not equipped sufficiently with UAVs.

**Introduction and the use of UAV allows the management structures, rescue and other units of Emergency Authorities of Central Asia:**

- strengthen the effectiveness of the management of rescue forces and means, localization and responses to emergencies;
- to ensure aerial photography with topographic reference, and video-photo-documentation of the objects of control to receive the detailed images;
- expedite the rescue operations and deliver assistance to affected people;
- strengthen responsiveness and shorten duration of search and rescue operations;
- reduce the number of rescue teams and other human resources and improve their safety;
- ensure the delivery of small-sized freights, first aid needs to hard-to-reach areas;
- enhance the effectiveness in monitoring of hazardous natural processes and phenomena, disaster forecasting;
- ensure correct orientation, focusing and escorting of rescue teams;
- improve the detection of exact coordinates and boundaries of emergency zone and rescue objects;
- ensure communication and data transmission;
- enhance the effectiveness of real-time video control of emergency zones,
- reduce the time for notification and informing stakeholders;
- ensure digital mapping of emergency zones, creation of 3D terrain model of different scales and formats;
- improve the ways of addressing a number of other issues in the field of disaster risk reduction, prevention and elimination of emergencies.

UAVs are easy to operate, they take-off and land in any chosen areas and can be managed manually or in automated flight mode. All that makes them economically feasible to use.

**The adoption of a set of organizational, legal and technical measures on development, improvement, implementation and use of UAVs will significantly enhance the capacity of the Emergency Authorities of Central Asian in the field of disaster risk reduction, prevention and elimination of emergencies.**