EXPLANATORY NOTE
ON INFORMATION CONCERNING THE IMPLEMENTATION OF MEASURES
FOR THE ESTABLISHMENT OF A DIGITAL ATLAS
OF TRANSBOUNDARY HAZARDS
OF THE COUNTRIES OF CENTRAL ASIA

Central Asia is experiencing a range of climatic changes and environmental challenges that have a significant impact on its population, ecosystems and economies. In addition, global warming is intensifying disaster risks, while the territory of Central Asia is exposed to virtually all types of natural and technological hazards.

Emerging threats are of a transboundary nature, and their consequences may affect the territories of several States simultaneously; regrettably, such cases have been recorded in the history of the region. In the future, powerful earthquakes, dam failures involving large volumes of water, increasing risks from moraine lakes located in border areas, wildfires and other hazards may occur.

In the countries of Central Asia, various atlases of natural and technological hazards exist; however, none is currently available as an open, interactive service with functionalities for emergency simulation and the assessment of potential disaster impacts.

At the same time, each emergency management authority in the Central Asian countries operates its own internal information systems, including dispatcher workstations and automated information systems for record-keeping and control, event logging, reports, reference materials and registries of emergency data, as well as other indicators and statistical information (for example, the Ministry of Emergency Situations of the Republic of Kazakhstan operates the Emergency Situations Automated Information System and Dispatcher Workstation 101; the Ministry of Emergency Situations of the Kyrgyz Republic operates the Automated Information and Management System for Emergencies, the Emergency Management Centre Dispatcher Workstation and the 112 Emergency System; and the Ministry of Emergency Situations of the Republic of Uzbekistan operates its Information System), in addition to various geoservices and geoportals for the visualization of cartographic and other spatial information, which are not always regularly updated.

The primary purpose of these systems is to automate the processes of collecting, recording, systematizing and storing quantitative and qualitative characteristics of emergency situations. At the same time, each information system maintains its own database for data storage and utilizes its own data transmission channels.

In this context, there is a clear need to establish standardized national interactive hazard atlases with the capability of integration into a unified interactive atlas of natural and technological hazards of the Central Asian countries. Such an atlas would incorporate functionalities for assessing transboundary disaster risks and would ensure enhanced efficiency and coordination of actions in emergency management and in the reduction of transboundary disaster risks.

Since 2023, with the support of the OSCE Programme Office in Astana, the Centre has been implementing the project entitled “Development of a Digital Safety Passport and Interactive Maps

of the Territories of Kazakhstan", which is planned for completion in 2024, followed by the transfer of the developed information system to the Ministry of Emergency Situations of the Republic of Kazakhstan.

Accordingly, in the current year, the Ministry of Emergency Situations of the Republic of Kazakhstan will transition to a unified Geographic Information System (hereinafter referred to as "GIS") featuring interactive regional maps and the visualization of information from the developed digital safety passports in the form of thematic layers. This will enable emergency management authorities to access reliable information on potential sources of emergencies and their underlying causes, ensure monitoring of the condition of natural sources of emergency situations, facilitate the early forecasting of potential emergencies and support their effective management.

In this context, the GIS system being developed for the Ministry of Emergency Situations of the Republic of Kazakhstan will serve as a ready-made prototype of a Regional Atlas, equipped with the necessary set of tools for forecasting, assessing and analysing transboundary threats in Central Asia.

On 10 November 2023, in Almaty, during the Regional Forum, the heads of emergency management authorities of the Central Asian countries considered and endorsed the Initiative to establish a Digital Atlas of Transboundary Hazards of the Central Asian countries, based on the example of the platform under development entitled "Digital Safety Passport and Interactive Map - Digital Risk Atlas of the Republic of Kazakhstan".

The Centre actively promotes the project concept for the establishment of a Digital Atlas of Transboundary Hazards of Central Asia by presenting it at various platforms and by submitting it to partners for consideration as a project for joint cooperation.

In this regard, during working-level consultations with partners, the Centre secured the support of MapAction, a leading European non-governmental organization providing mapping services in emergency situations, for technical assistance in the development of the Digital Atlas of Central Asia.

In addition, during a working meeting with a delegation of the Directorate-General for European Civil Protection and Humanitarian Aid Operations of the European Commission (DG ECHO), representatives of the Directorate-General informed that the Centre's project concept for the establishment of a Regional Atlas, alongside the project on the establishment of a Regional Early Warning System, is being considered as one of the directions for a pilot project planned for implementation in Central Asia with the support of the European Commission.

For the purpose of assessing the results, it is proposed to proceed to the viewing of a video presentation (10 minutes).

The establishment of a Regional Digital Atlas of Hazards through the integration of national hazard atlases and automated information systems will offer the following advantages:

- **Enhanced prevention of and response to transboundary emergencies:** A centralized system will incorporate emergency modelling tools, improve responses to threats and emergency situations, support the preparation of management decisions, identify the

potential zones of impact of transboundary emergencies and assess possible consequences arising from their occurrence;

- **More accurate risk assessments:** The analysis of data from multiple countries will lead to more comprehensive and precise assessments of transboundary disaster risks;

- **Joint planning and resource optimization:** The shared use of information and resources for responding to transboundary disasters will become more effective and cost-efficient, while avoiding duplication in the deployment of forces and assets;

- **Mutual information-sharing and early warning:** The establishment of a regional atlas with the capability of integration with the Regional Mutual Information-Sharing and Early Warning System on the threat and occurrence of transboundary emergencies will significantly enhance mechanisms for mutual information-sharing and public warning for populations in Central Asian countries exposed to transboundary disaster risks.

In May 2024, the UNDP Regional Office for Central Asia presented the results of studies conducted by an international early warning expert, Mr. Vasko Popovski, for the preparation of a Regional Report on the mapping of early warning systems in the Central Asian countries. The studies identified a number of challenges related to insufficient digitalization and automation of early warning processes. The international expert proposed conceptual measures to address technical, regulatory and institutional gaps, **which fully correspond** to the functional capabilities of the Digital Atlas of Transboundary Hazards of the Central Asian countries proposed by the Centre, namely:

- standardization of risk and hazard assessment systems;

- integration of technologies for data collection, analysis and dissemination;

- establishment of monitoring mechanisms to assess the effectiveness of early warning systems and introduce necessary adjustments for continuous improvement;

- integration of new communication channels and services for the dissemination of warnings.

Overall, the establishment of a Digital Atlas of Transboundary Hazards of the Central Asian countries will provide public access, as well as access for all relevant stakeholders, to information on risks, including transboundary risks, within the respective territories. It will also facilitate more effective and coordinated action in the field of hazard and emergency management, thereby contributing to the protection of lives and property of populations residing in the Central Asian countries and border areas.

Building on the endorsement of the heads of emergency management authorities of the Central Asian countries, the Centre will continue its efforts to establish the Digital Atlas of Transboundary Hazards of Central Asia.