Challenges of Disaster Resilience in Mining Communities of Armenia

Policy Brief

Positioning of the problem

The issues of disaster resilience in the mining communities of Armenia are directly related to disaster risk reduction on the site and ensuring safe production processes (technical safety) in the mining industry, which requires comprehensive and coordinated actions. The research conducted on the topic included legislative and institutional regulation of the sphere (including the draft legal acts, which have not been approved by the government yet, and are available at www.e-draft.am), their analysis. The programs implemented in Armenia in terms of technical safety, as well as the disaster risk component, published reports, the best technologies, standards in this area were studied, and suggestions were made to improve the current situation.

The main legislative and institutional issues and gaps identified

There are a number of challenges for improving resilience in Armenian communities, which, in addition to the gaps in the legislative and institutional field, are also related to compliance with the basic rules of the daily activities of mining operators and their control. The issues and gaps identified in the *state-subsurface user-community* chain are conditionally divided into 2 groups;

- common issues related to the resilience that affect all Armenian communities and concern; (1) lack of a legal basis for declaring a state of emergency at all levels of public administration in the event of disasters, (2) in the direction of disaster prevention, management, response and elimination of consequences; (a) the imperfection of the legal field, (b) the uncertainty of the functions of specific actors in these matters; (c) lack of clearly separated powers and responsibilities between public administration bodies (republican, territorial and local self-government bodies) and organizations; (d) lack of necessary material and technical resources, technical means and qualified personnel; (3) improper state control over mining processes, (4) lack of effective interaction between government agencies, (5) neglect of the disaster resilience component in socio-economic development programs, (6) low level of community training in disaster resilience, (7) lack of an integrated educational system aimed at improving the resilience of communities, (8) the low level of awareness and education of the population.

- specific issues related to the resilience that directly affect mining communities and communities in their impact area, in particular: **(1)** inadequate state control over mining processes, **(2)** lack of classification of tailings according to the degree of hazard of the waste accumulated in them, **(3)** lack of risk/safety assessment of tailings (lack of methodologies), **(4)** ignoring the problems identified by mining operators in the production process or late implementation of technical and / or organizational measures aimed at solving them, **(5)** insufficient capacity and technical means to prevent possible disasters and identify problems in the process chain by mining operators, **(6)** the use of obsolete technologies and equipment with low technical efficiency by mining operators (the requirement of the legislation of the sphere on the use of the best technologies, is declarative in nature, since there are no guaranteeing mechanisms, and the level of technological conditions is not established, the non-provision of which can serve as a basis for denial of the right to subsurface use), **(7)** In case of termination of the subsurface use right by the state, further implementation of safety issues / measures for the population of the extracted mineral area and its adjacent communities, which falls on the shoulders of the state.

Preliminary recommendations for policy development to improve the current situation

Short-term	1. Close cooperation with scientific, research organizations, educational institutions that train specialists in the field, obtaining and taking into account their professional opinion. 2. For specialists involved in the process of examination and approval of programs in the field of subsurface use (including expert processes, etc.), in the state system, according to the professional orientation, the definition of clear professional standards or a minimum level of knowledge, in the case of non-provision of which a person cannot be involved in any activities related to the mining sector. 3. Continuous training of specialists in the field (including the staff of the mining operator) and proper control over its implementation. 4. Increasing the level of training of enterprises in the field of subsurface use by carrying out scheduled exercises and proper control over its implementation. 5. Conducting open field training for the public in the mining communities (on an annual basis) with the involvement of local self-government bodies and relevant government agencies.
Medium-term	6. Review of the legislative framework in the field of subsurface use. 7. Analysis, review and synthesis of the powers, functions, of the state administration and local authorities, and procedures established for their implementation. 8. Development of norms and rules of operation of tailings. 9. Development of methodologies for the safety assessment of subsurface waste facilities, including tailings (active, temporarily suspended, conserved) 10. Carrying out a comprehensive safety assessment of active, temporarily suspended, conserved tailings (technical safety studies, environmental studies, assessment of dam stability taking into account the risk of natural disasters). 11. Establishment of mechanisms to ensure the introduction of the best available technologies by defining the minimum level of technological conditions / standards, taking into account their feasibility. 12. Inclusion of the disaster resilience component in socio-economic development programs (community, regional, republican).
Long-term	13. Establishment of a separate state body dealing only with mining issues, who will be entrusted with key functions in the mining sector, which will make the work of the sphere more coordinated. 14. Continuous improvement of the material and technical equipment of communities / regions in order to develop resilient mining communities. 15. Review of the action plans of the companies in the field of subsurface use in emergency situations with the involvement of potential impact communities to make those plans realistic. 16. Introduction of an integrated education system aimed at increasing the resilience of communities at different levels of education: kindergartens, schools, universities.

International Best Practice

On the one hand, increasing resilience in mining communities is related to the application of modern technological solutions by the subsurface user, on the other hand, at all stages of subsurface use, (design, construction, operation, monitoring, control, decommissioning, closure, reclamation, etc.,) the introduction of the best international tools and the adoption of a consistent approach. From this point of view, Best Available Techniques (BAT) Reference Document for the Management of Waste from Extractive Industries, as well as the guidelines and manuals developed by the Joint Expert Group on Water and Industrial Accidents of the UNECE, which form the basis of the World Industrial Standard for the Management of Tailings Storage Facilities (2020), are noteworthy.