

ETHODOLOGY FOR THE AREA ASSESSMENT IN TERMS OF

# **KAZBEGI AREA**

When one says Georgia, the spectacular glacial mountains come to mind. After all, the official Georgian name of Mount Kazbek, in surroundings of which this project will take place, is Mqinvarc´veri, i.e. "glacier peak".

This stunning and dynamic landscape has huge economic potential not only as a source of hydropower, but also for its tourist attractiveness. However, the same monumental mountains and roaring rivers are a source of high and still growing geological risk to the population, due to climate change. Flash floods, debris flow, landslides and river bank erosion are currently among major reasons of natural disasters in Georgia.

The surroundings of Mount Kazbek (5054 m a.s.l.) are historically known for frequent catastrophic Debris flows that threaten strategic infrastructure. This relatively young volcano rises on the northern border of Georgia and Russia. The monumental mountain is covered with glaciers that descend into very deep valleys. Glaciers are retreating according to the global trend. Climate change in these glacial areas may therefore increase the susceptibility to geodynamic processes. Some of the tragic debris flow events in 2002 and 2014 were caused by the collapse of part of a mountain glacier.





Challenge Fund, within the Czech-UNDP Partnership (CUP) for Sustainable Development Goals between the Czech Development Agency and the United Nations Development Program has supported a project:

METHODOLOGY FOR THE AREA ASSESSMENT IN TERMS OF DEBRIS FLOW HAZARD USING INNOVATIVE TECHNOLOGY

The main goal of CUP is to bring not only Czech expertise but also unique innovative solutions for sustainable development to partner countries.







# **EXECUTIVE SUMMARY OF PROJECT**

The project will be conducted in cooperation between Czech Geological Survey (CGS) and Georgian National Environmental Agency (NEA) which is responsible for the monitoring, assessment and mapping of geological hazards in the country.

The project will provide the NEA with a know-how to evaluate endangered areas for urban and infrastructure planning and development in terms of debris flow hazard more effectively. The project is focused on eliminating the hazard associated with frequent catastrophic debris flows causing serious socio-economic damages connected also with a loss of human lives in high-mountainous regions of Georgia.

To deal with geohazards mitigation, a harmonized debris flow hazard assessment methodology will be developed and implemented into the activities of partner organization NEA.

Based on the new methodology and field validation, a hazard map of Kazbegi massif test area will be produced with focus on geological aspects in urban and infrastructure planning and reduction of this type of natural hazards in vulnerable areas. Key elements of the methodology include the analysis of a digital

## **CZECH GEOLOGICAL SURVEY ABROAD**

The CGS serves as the geological service of the Czech state and thus takes responsibility for gathering, storing and interpreting information about the geology of the territory of the Czech Republic. It is a state-subsidised organization that has the status of a Research Institute of the Czech Ministry of Environment.

The international reputation of the CGS is based on the integration of services for society with excellence in research in the fields of geological sciences, geological hazards and environmental protection. Range of experiences in applied scientific research at home and abroad acquired over almost a century ensures that the CGS can also offer assistance to developing countries in monitoring environmental problems and developing policies for sustainable development.

# **MOTIVATION**

Georgia's traditional risk management system is rather reactive. It focuses on dealing with the consequences of natural disasters and involves considerable costs to rebuild. This new project will stimulate the cooperation between CGS, NEA and local communities which will improve spatial planning to prevent construction in vulnerable areas and to reduce remediation costs.

The UN have set 17 goals for sustainable development, of which the project focuses primarily on: Goal No. **13. Climate action** - Make cities and human settlements inclusive, safe, resilient and sustainable. Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters; and the Goal No. **11. Sustainable cities and communities** substantially increase the number of cities adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, to develop holistic disaster risk management.

The project also responds to the "Strategy for Development of High Mountain Settlement" approved by the Georgian Government in 2019. Geodynamic natural processes are very difficult to prevent. However, it is possible to mitigate their consequences to avoid disasters and loss. This is mainly due to effective spatial planning with high-quality engineering and geological data. This project will foster ways to a conceptual solution for risk mitigation and prevention.

THE GLOBAL <mark>Go</mark>als

terrain model and satellite mapping of geological hazards of all major river basins in the area of Kazbegi mountain. This is followed by field verification of the most important geohazards.

#### **IMPLEMENTER**

Czech Geological Survey (www.geology.cz/gruzie2021)

#### **PARTNER ORGANIZATION**

National Environmental Agency (nea.gov.ge)

#### **PROJECT DURATION**

December 1<sup>st</sup>, 2020 - December 1<sup>st</sup>, 2021

### **BUDGET** 40 000 USD





