

## Alliance for Disaster Risk Reduction (ALTER)

***An EU-funded project on the establishment of public-private partnerships in Armenia to address flood risks that stem from water and mine dam failures.***

The Alliance for Disaster Risk Reduction project, or ALTER for short, focuses on establishing public-private partnerships to understand and address flood risks that stem from water and mining dam failures. Know-how, technology and experience from the European Union will be transferred to Armenia. Activities will stress the importance of full cooperation between local communities, non-governmental organizations, government ministries, and private-sector companies. The project's duration is 24 months and is co-financed by the European Union's Humanitarian Aid & Civil Protection Directorate.

The project will focus on three pilot areas where dams and other activities present risks to local communities. The areas are the Akhtala area of Lori Marz along the Shamlugh and Debed rivers, the Vorotan Cascade and its associated dams in Syunik Marz, and the city of Kapan and the Voghji river region of Syunik Marz.

### The project partners include:

- National Observatory of Athens' (NOA), Institute of Geodynamics (Lead Partner)
- European University of Cyprus' Centre of Excellence in Risk and Decision Science
- Bulgarian Academy of Science's Center for National Security and Defense Research
- Armenia's National Platform for Disaster Risk Reduction (known by its Armenian acronym ARNAP)
- American University of Armenia's (AUA) Center for Responsible Mining



*The Geghi Dam and Reservoir - Included in Work Area 3.*

## ALTER Work Packages & Key Deliverables

### I - Raising Awareness and Dissemination Campaigns

The American University of Armenia's Center for Responsible Mining will lead activities related to awareness raising and dissemination. This activity will focus on maximizing the project's outcomes by communicating project results to a wide range of relevant audiences including local stakeholders, communities, and the general public.

#### Key Deliverables include:

1. A Communication Plan for the project.
2. A fully developed Project Identity including a website, logos, and other branding materials.
3. A variety of dissemination and communication tools including project leaflets, press releases, popular articles, and project social media presence.
4. The organization of a training workshop and a summer school targeted at early career scientists and civil protection personnel.
5. A final dissemination report in multiple languages covering the accomplishments and lessons learned for the project.



*The Spandaryan Dam and Reservoir -  
Included in Work Area 2.*

## II - Best Practices on Resilience for Cities & Areas with Dams Against Earthquake Originated Floods

In this work package, experts from the European University of Cyprus will work to identify the most suitable best practices on risks related to dams in earthquake zones. They will analyze past events for their similarities to other project areas in and adapt these practices for Armenia. The broader end goal of this work package is to develop practices that can be adopted across Armenia.

### Key Deliverables include:

1. A questionnaire for the collection and analysis of best practices.
2. A methodology on adaptation and adoption of best practices as well as a document detailing the best practices collected.

## III - Increasing Resilience of Local Communities Through Public-Private Partnerships Through Small Scale Exercises & Trainings

This multifaceted work package will utilize the best practices established in the previous work package. It will be led by Armenia's Platform for Disaster Risk Reduction, known primarily in Armenia as ARNAP. Specifically, ARNAP will organize trainings, small-scale exercises, and workshops that bring together local communities and the private companies that manage dam infrastructure.

### Key Deliverables include:

1. Signed agreements on Public-Private partnerships.
2. A documentation package aimed at improving local communities resilience.
3. 3 training programs and training materials related to best practices.
4. Small scale exercises in each of the 3 project areas based on realistic scenarios including all materials.



*The Nahatak Tailing Dump - Included in Work Area 1.*



## IV - Transfer of Methods, Tools, Knowhow & Experience for Risk Preparedness and Management

The Bulgarian National Academy of Science's Center for National Security and Defense Research will lead the fourth work package of the ALTER project. This work package focuses on the transfer of methods, tools, and experience for risk preparedness and management. Specifically, the package will focus on providing tools and strategies to assist in decision making by local government leaders. These tools will be customized to address the specific needs and challenges of Armenia.

### Key Deliverables include:

1. A package of sensors to monitor dam stability and its integration into existing warning systems.
2. A Web GIS system to assist non-technical users in decision making.
3. Selection and setup of flood evolution prediction software.
4. A web tool for supporting evacuations in case of flood.
5. A web tool for supporting the provision of goods post-flood.



*The Artsvanik Tailing Dump - Included in Work Area 3*

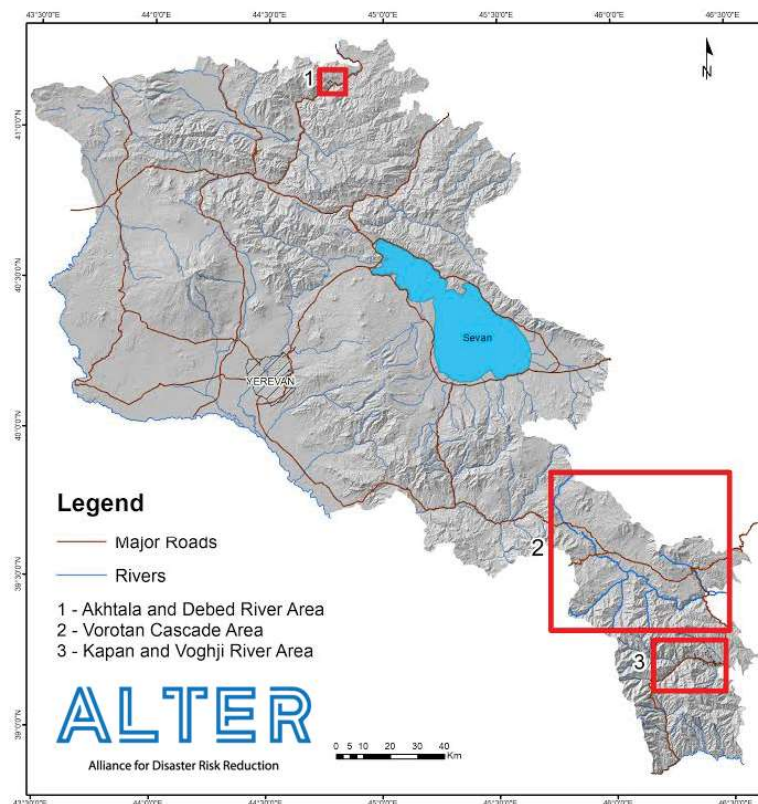
## Project Area And Maps

### Alter's Project Areas In Context

Below is a map of the project areas and their relation to one another in the Republic of Armenia. These project sites were chosen due to their unique aspects as they relate to civil protection in Armenia.

1. The Akhtala and Debed River Area of Lori Marz and the mine tailing ponds located there.
2. The Vorotan Cascade series of dams and hydroelectric infrastructure centered around the city of Sisian in Syunik Marz.
3. The Voghji River and water and mine tailing dams affecting the Kapan area of Syunik Marz.

Below are maps and descriptions of the specific project areas.



## Project Area And Maps

### PROJECT AREA 1: AKHTALA AND THE DEBED RIVER

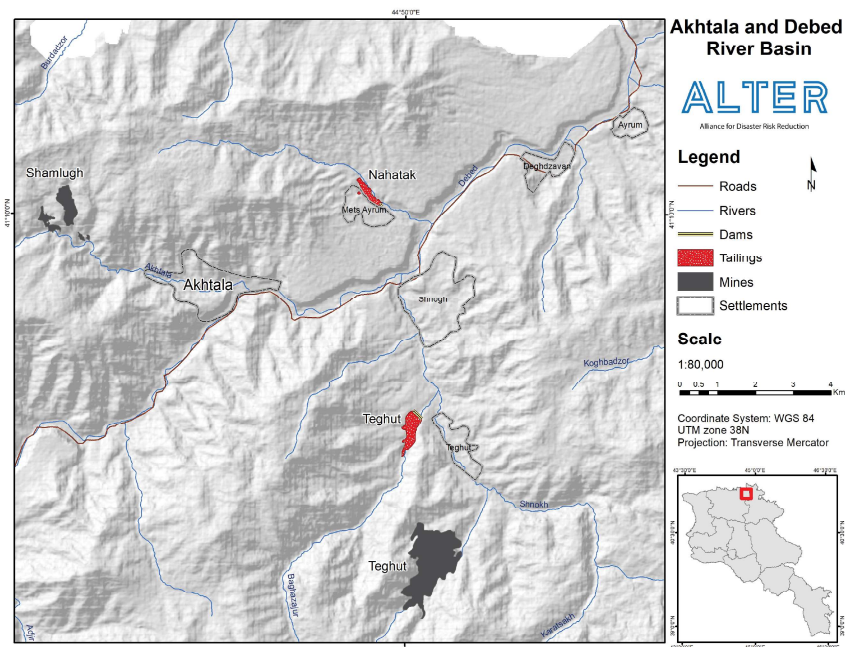
#### Key Facts

About 200 km north of Yerevan (4 hours)

Administrative District: Lori Marz

Impacted Population: ~3000, not counting downstream in Georgia

Lori Marz is one of the three northern provinces of Armenia which border Georgia. This region is known for being very mountainous, green, and forested. During the Soviet era, there was significant industry around Vandazor (the largest city in the region and the third largest in Armenia), but since then, most industry has left and the economy of the region has returned to mineral extraction and agriculture. ALTER is working with three (possibly four) mine tailing facilities in this region. Three of the facilities ALTER is focusing on are in the vicinity of Akhtala (Nazik, Paytutsikerni Dzor, and Nahatak) along with one potential site near the village of Teghut.





## Project Area And Maps

### PROJECT AREA 2: THE VOROTON CASCADE

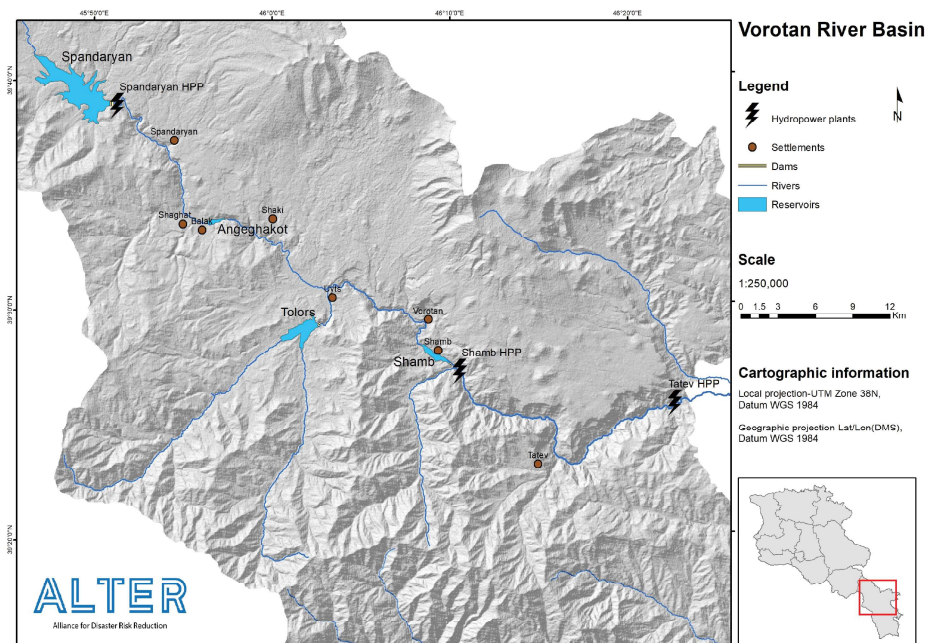
#### Key Facts

About 200 km southeast of Yerevan (3 hours)

Administrative District: Syunik Marz

Impacted Population: ~20,000

The Vorotan Cascade Area is one of Armenia's largest electric production infrastructure projects and is vital to the nation's stability and economy. Electrical production along the Vorotan Cascade occurs at several hydroelectric power plants that are driven by four dams along the Vorotan River. The city of Sisian and its surrounding villages would be at risk of a catastrophic flood in the event of dam failures along the cascade. Cities such as Goris (~20,600), Kapan (~43,000), and the surrounding villages could lose power in the event of a dam failure or major seismic event.



## Project Area And Maps

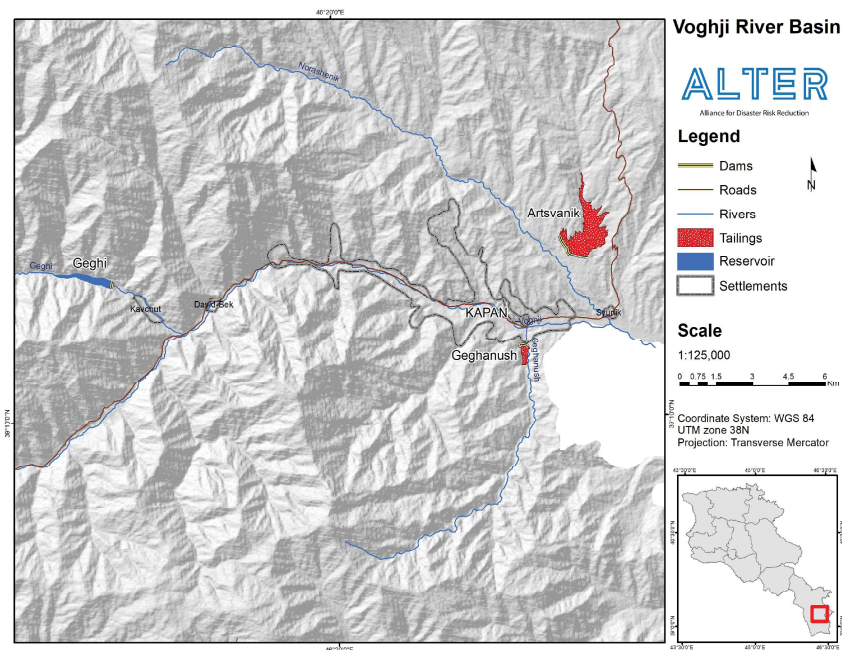
### PROJECT AREA 3: KAPAN AND THE VOGHJI RIVER BASIN

#### Key Facts

About 300km southeast of Yerevan (5 hours)

Impacted Population: 45,000

Project Area 3 contains some of Armenia's most intensive mining activities and two of Armenia's largest tailing dams. Additionally, the Geghi Reservoir upstream of Kapan is also included. The villages of Kavchut, Andiokavan, Hamletavan, Shgharjik and the cities of Kapan and Syunik lie in the immediate floodplain of the Geghi river and the Voghji River (below the confluence of the rivers). The villages of Verin Giratagh and Nerkin Giratagh are not in the floodplain, however the only road access to these villages is through the floodplain below the Geghi dam. The two tailing dams also pose a risk to Kapan's airport which would be needed in an emergency and the main highway connecting Armenia to Iran.







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## Contacts for ALTER Partners

For more information, contact one of our project partners.

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ALTER is co-financed by the European Humanitarian Aid and Civil Protection Directorate (ECHO). Learn more about ECHO and other EU funded civil protection projects at <https://ec.europa.eu/echo/>

## Follow ALTER Online

For the most up to date information, follow ALTER on the web and on social media.

On the web: [www.alter-project.eu](http://www.alter-project.eu)

Facebook: <https://www.facebook.com/ALTERProjectEU>

LinkedIn: <https://www.linkedin.com/company/alter-alliance-for-disaster-risk-reduction>

