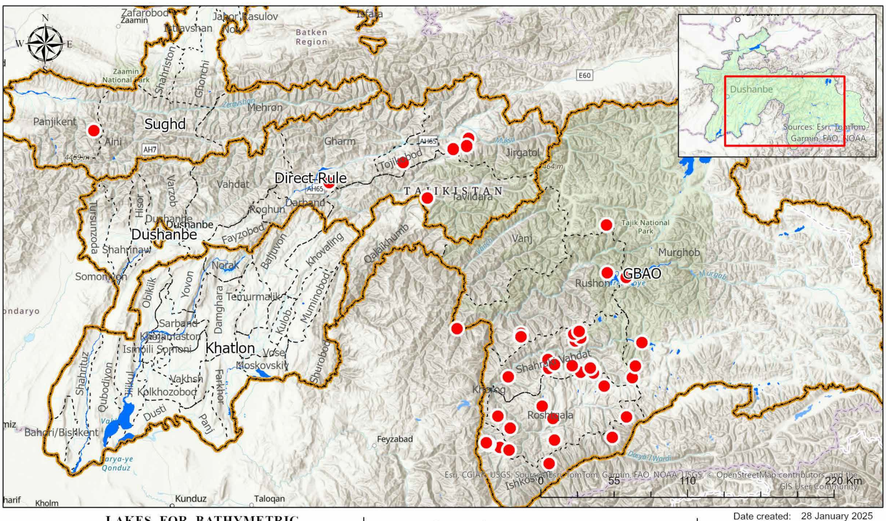
ADAPTIVE AND RESILIENT COMMUNITIES IN THEIR HABITAT (ARCH)



LAKES FOR BATHYMETRIC ASSESSMENT

Tajikistan

Scale: 1:1,620,000

Aga Khan Agency for Habitat

Legend

- Assessed lake 2015-2024 (47 Lakes)
- District

Date created: 28 January 2025

Datum/Proj.: UTM/Geographic

The boundaries and names and the designations used on this map do not imply official endorsement or acceptance by the Aga Khan Development Network (AKDN). All information is the best available at the time this map was produced.

IMPORTANCE OF REMOTE NATURAL HAZARDS ASSESSMENT:

Understanding Hidden Hazards in the Mountains

A comprehensive set of tasks has been implemented to identify innovative methodologies for assessing potential glacial lake outburst floods (GLOFs), which are infrequent yet devastating natural disasters that can cause significant loss of life and damage to remote mountain regions.

THE PURPOSE OF THE BATHYMETRIC SURVEY:

Bathymetric surveys are carried out to determine the area, volume and depth of high-altitude lakes, the state and type of their dams, followed by modelling of the probable lake breakthrough and the area of impact.

KEY OUTCOMES:

Between 2015 and 2024, surveys and risk modeling were conducted for 46 potentially hazardous high-mountain lakes in Tajikistan. This included 6 lakes in the Rasht Valley, 1 in the Sughd Region, and 39 in the Pamirs of Gorno-Badakhshan Autonomous Region (GBAO). The project involved collaboration with Moscow State University and local agencies, including the Hydrometeorology Agency, the Main Directorate of Geology, and the Committee for Emergency Situations and Civil Defense.

DIAGRAM OF AREA LAKES OBSERVED:

MORPHOMETRIC CHARACTERISTICS OF THE HIGHLANDS LAKES TABLE: MODELLING OUTCOMES:

Scheme-maps have been developed to illustrate mudflow and stream water behavior during high-altitude lake breakthroughs, showing:

- Depth of flooding
- Stream velocity
- Hazard points at areas of maximum flow downstream
- Results have been shared with Partner Organizations, including:
- Committee on Emergency Situations and Civil Defense
- Main Department of Geology
- Hydrometeorology Services (Hydromet)

RECOMMENDATIONS:

Conducting regular monitoring of glacial lakes and glaciers using remote sensing

Carrying out aerial (aerovisual) reconnaissance of terrain

Perform on-foot field investigations of valleys, lakes, and glaciers

Enhance public awareness, preparedness, and alert systems for Emergency and Security Services

Switzerland.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

AKAH

2025 International Year of Glaciers' Preservation