



GEOSS Asian Water Cycle Initiative

**Reduction of Hydrometeorological disasters
in **C**hirchik - **A**khangaran river basin
considering climate change and water cycle changes**

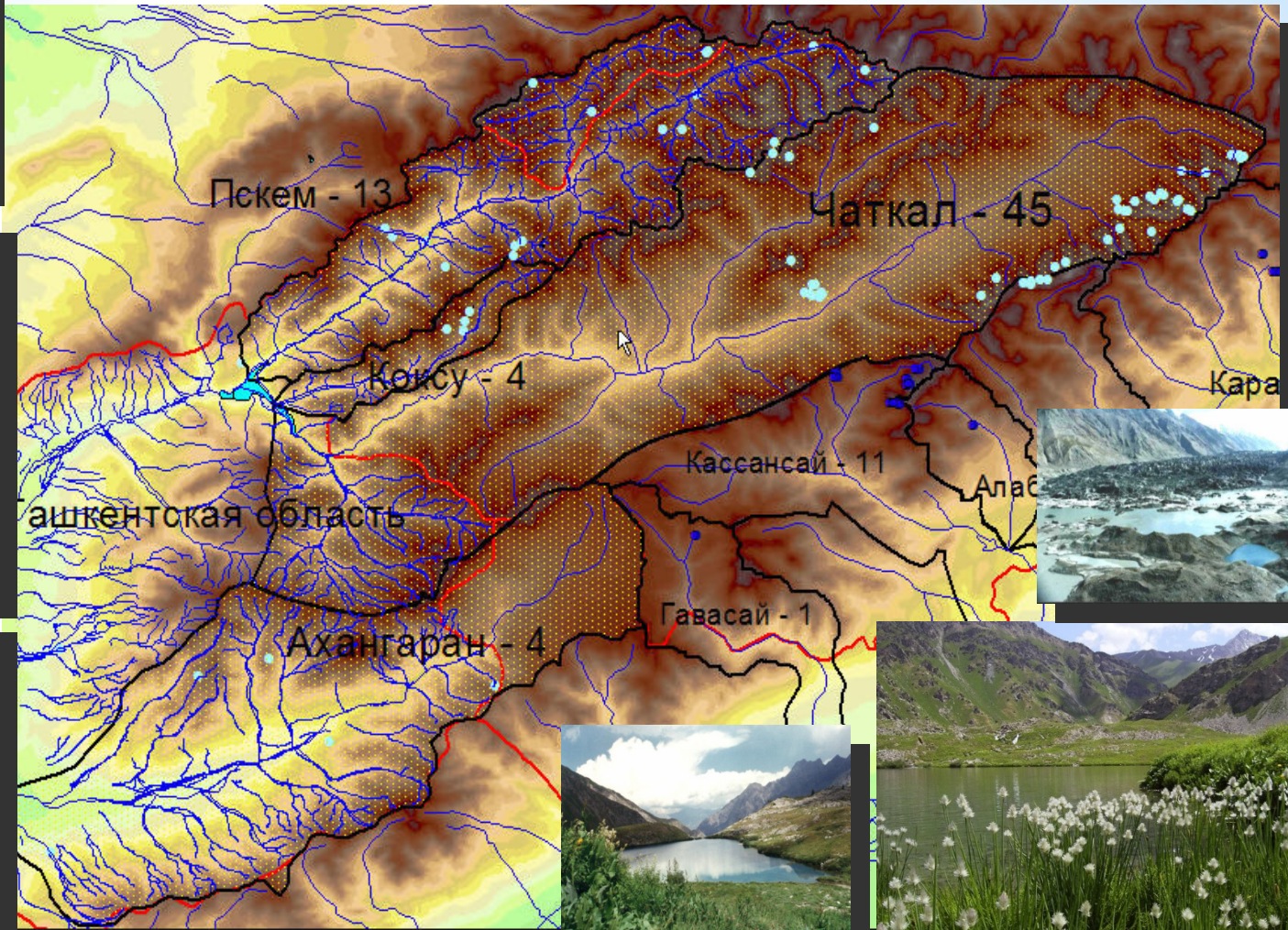
PDM Uzbekistan

Background of the project

Uzbekistan is prone to climate-related disasters such as floods, mudflows, drought.



Map of **Chirchik-Akhangaran** river basin

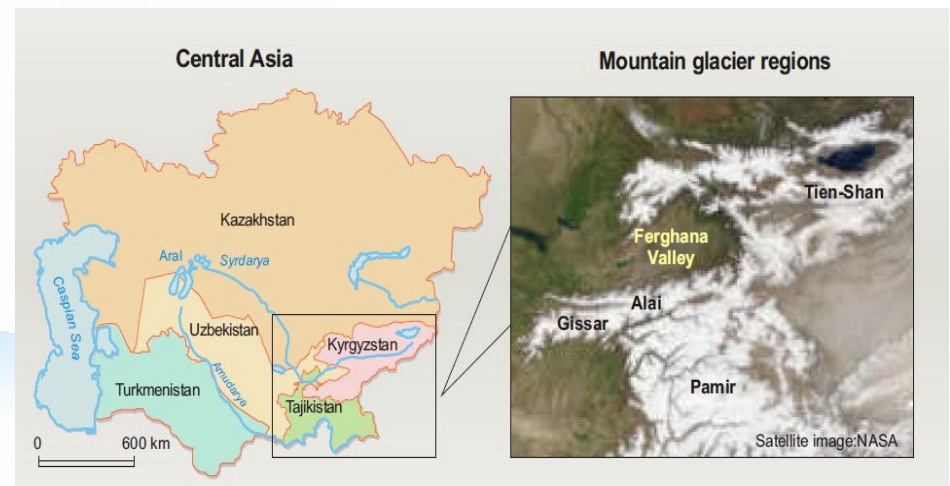
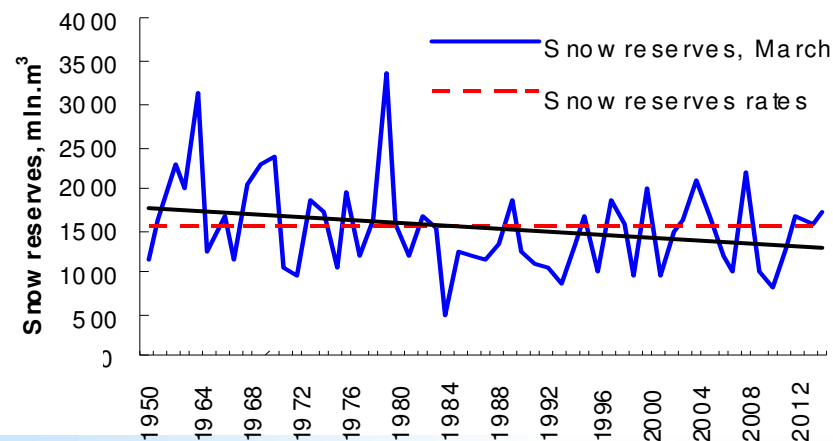


In **Chirchik - Akhangaran river basin and in neighboring countries there are many potentially dangerous and developing objects - glacial lakes and outbreking lakes, and monitoring are difficult because of inaccessibility. Objects themselves are often small in size but have an enormous potential threat in the event of their destruction.**

In accordance with research concluded that, in relation to climate change in Chirchik- Akhangaran river basin is:

- ❖ Reduction of snow cover, increasing seasonal snow line;
- ❖ Degradation of glaciers;
- ❖ Reduction of available water resources;
- ❖ Strengthening of natural variability and the overall trend increase in extreme water availability in years;
- ❖ Revealed the lack of information and methodological support not only for the country but also the neighboring countries, to better ensure the data.

Long-term changes of the snow reserves estimated for the end March



Proceeding from the above, you need to conduct research in the following areas:

- ❖ Improved monitoring of snow and ice resources;
- ❖ Assessment of Vulnerability Chirchik - Akhangaran river basin from the effects of dangerous Hydrometeorological phenomena;
- ❖ Improved forecasting and early warning of dangerous Hydrometeorological phenomena;
- ❖ Development of adaptive strategies and measures.

Overall Goal

Reduction of Hydrometeorological disasters in Chirchik - Akhangaran river basin considering climate change and water cycle changes

Project Purpose

Improved forecasting and early warning of dangerous Hydrometeorological phenomena in Chirchik - Akhangaran river basin

Outputs

1. Improved monitoring of snow and ice resources:

- a) Assessment of the dynamics of glaciers in the upper Chirchik - Akhangaran river basin.
- b) Assessment of the dynamics of high mountain outbursting lakes, due to the fact that the retreat of the glaciers - a phenomenon that can cause a breakout of glacial lakes that threaten serious flooding in the lower reaches of the rivers.
- c) Creating an archive of high resolution satellite data for system monitoring high mountain outbursting lakes. Satellite images have many advantages, they can be used to monitor the potential danger of objects located in the territory of neighboring countries, which is very important for the study basin.

Outputs

2. Assessment of Vulnerability Chirchik - Akhangaran river basin from the effects of dangerous Hydrometeorological phenomena:

- a) Analysis of the current variability of extreme hydrometeorological phenomena (probability of occurrence, duration of hazardous period by the territory) and their after-effects for vulnerability assessment.
- b) Selection of methods of an estimation of vulnerability of water resources of a Chirchik - Akhangaran river basin in conditions of climatic change.
- c) Future risk assessment in line with the Climate Scenarios and application of the advanced methods and tools.
- d) Generation of vulnerability and hazard zonation maps and provide information for planning disaster mitigation measures

Outputs

3. Improved forecasting and early warning of dangerous hydrometeorological phenomena:

- a) The development of hydrological models.
- b) Creation of an Archive of satellite remote sensing data for the characteristics of the hydrological modeling.
- c) Creation and maintenance of an information database.

4. Development of adaptive strategies and measures:

- a) Since it is not possible to completely avoid natural hazards like floods, mudslides, etc., you need to build capacity for adaptation related to prevention (keeping), the softening effect (protection) and a reduction of damage (insurance).

Activities and Key Leaders

NIGMI, Uzhydromet.

1.Improved monitoring of snow and ice resources

WMO/HyCOS

– ARAL HyCOS, ESA, NOAA, JAXA, DIAS

2.Assessment of Vulnerability Chirchik - Akhangaran river basin from the effects of dangerous Hydrometeorological phenomena

WMO/HyCOS –

ARAL HyCOS, GEF/UNCCD/UNFCC

3.Improved forecasting and early warning of dangerous Hydrometeorological phenomena

DIAS,

JACA, GEF/UNCCD/UNFCC, UTokyo, ESA, NOAA, JAXA

4.Development of adaptive strategies and measures

WMO/ARAL

HyCOS, JACA, GEF/UNCCD/UNFCC, UTokyo

Thank you for your attention !

