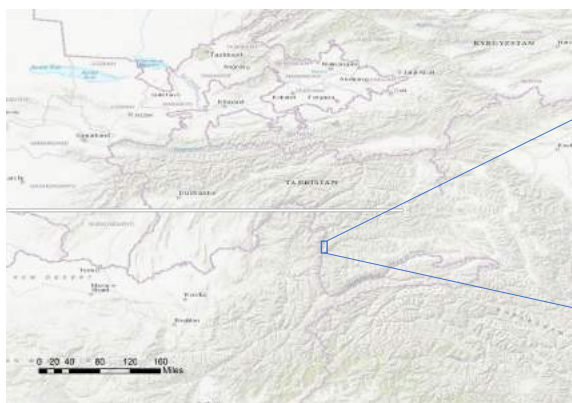




Climate Change Related Agriculture and Irrigation Water Challenges in a Small, Snow Fed Mountain Basin in Pamir, Tajikistan: Case Study from Porshinev

Aslam Qadamov Postdoctoral Fellow UCA/MSRI

Study area



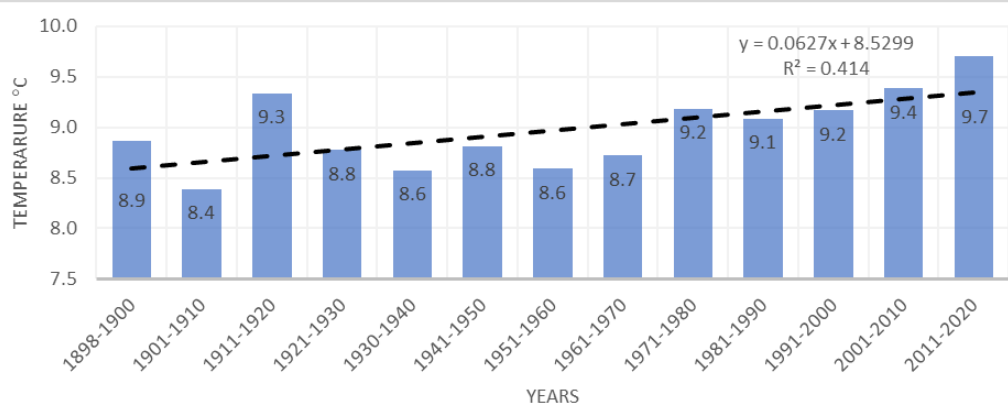
Porshinev Jamoat (municipality) situated 12 km far from Khorog city, administrative center of GBAO. Porshinev situated in a landlocked region and having predominantly dry, continental climate. More than 80% of annual precipitation occur during the cold season.

Methodology

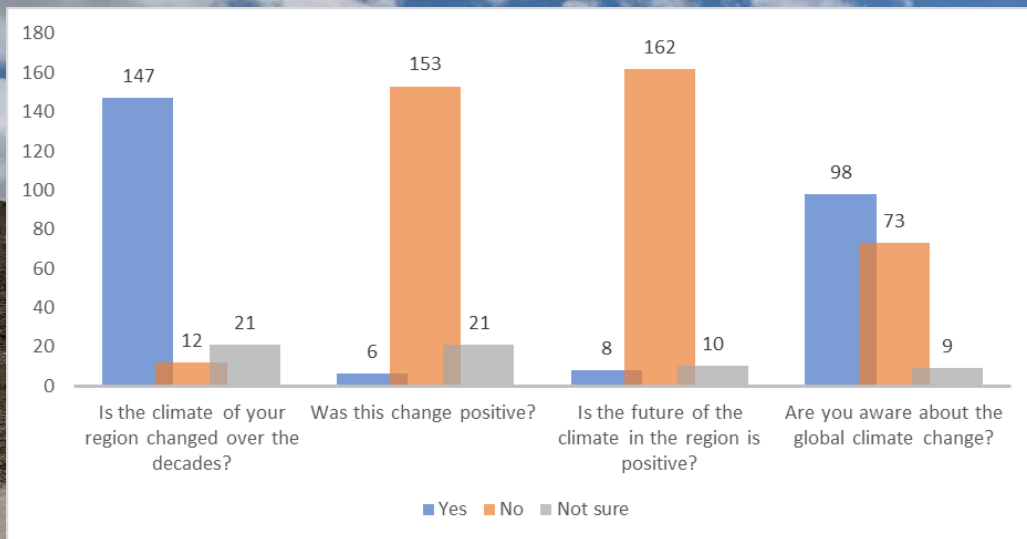
- temperature and precipitation data for last 100 years were analyzed
- Interview with local farmers was organized
- Land use and land cover change map was created using the old scanned map and high-resolution satellite image of 2018



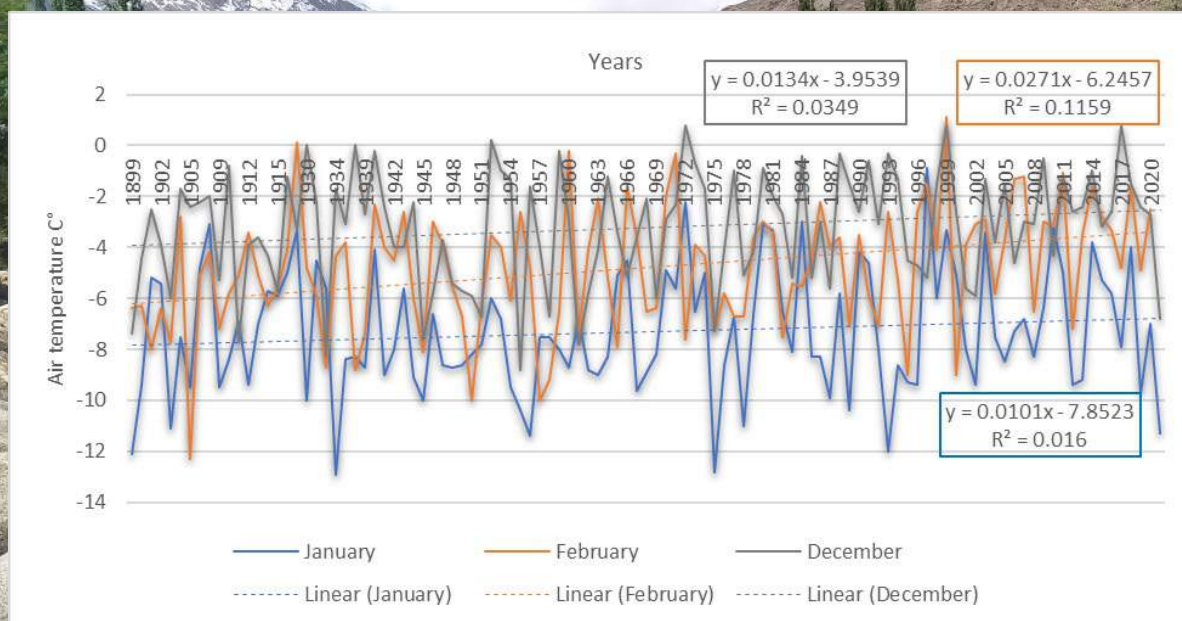
Results



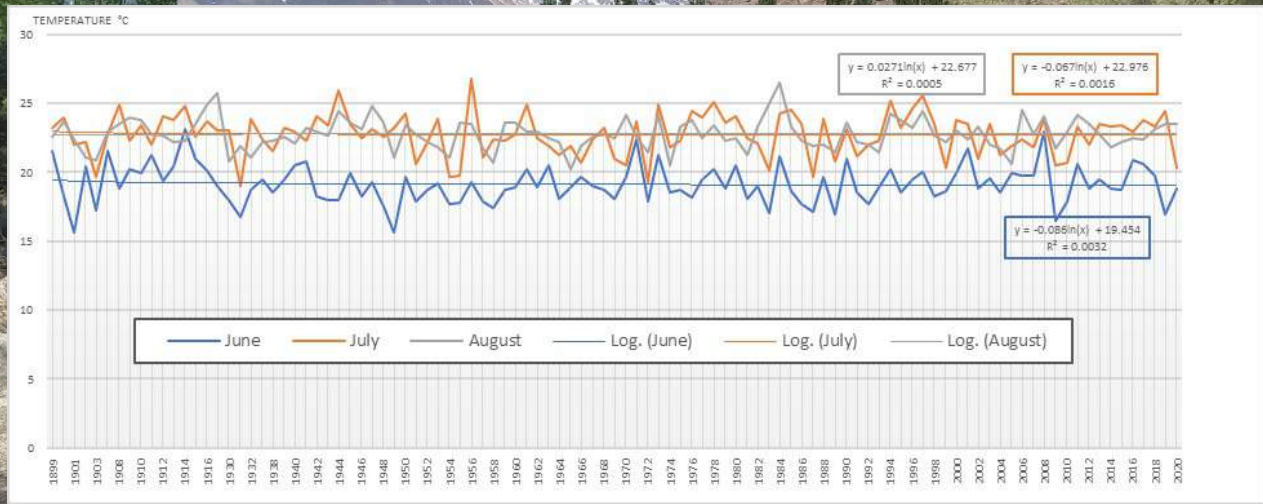
Results



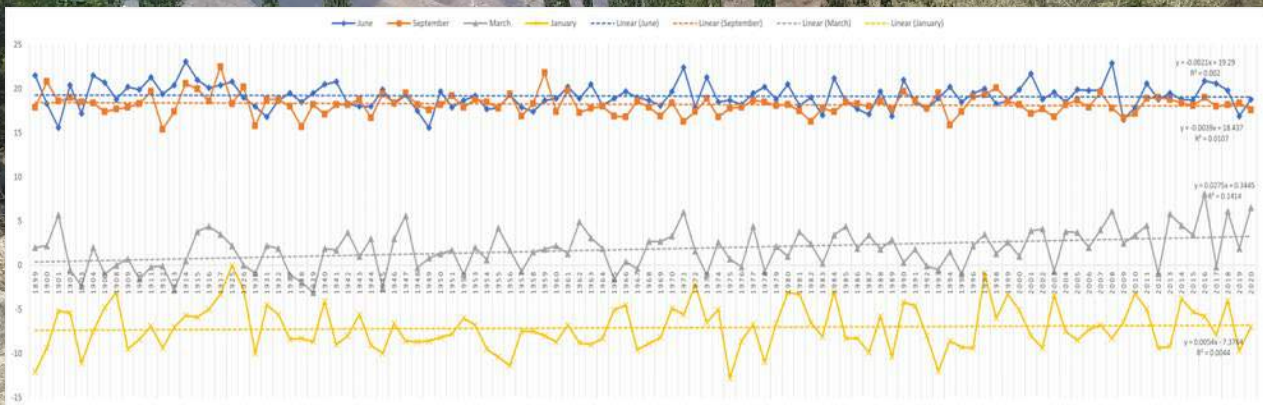
Air Temperature Change



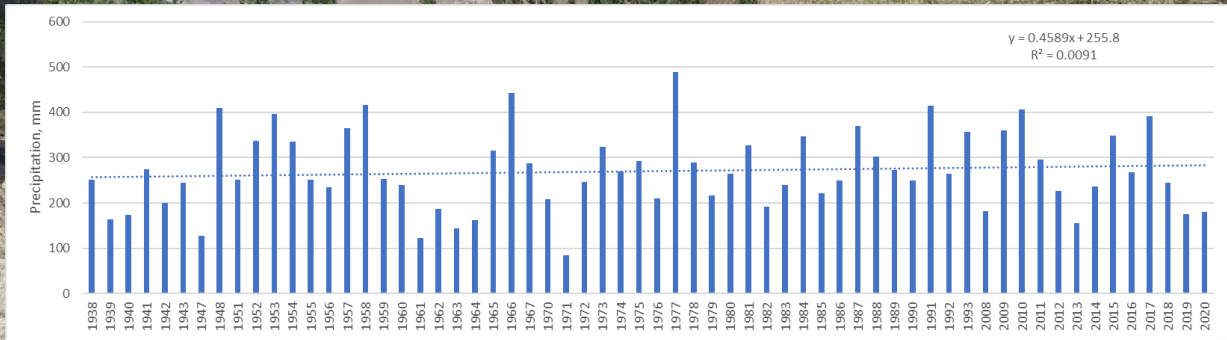
Air Temperature Change



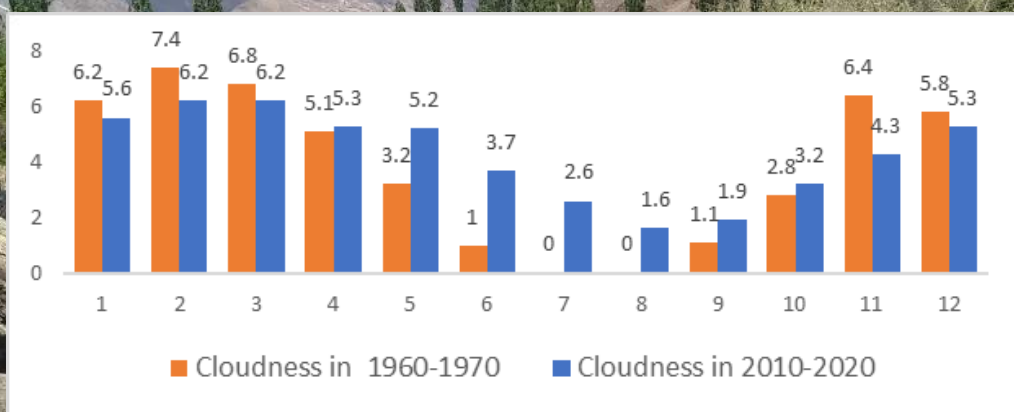
Air Temperature Change



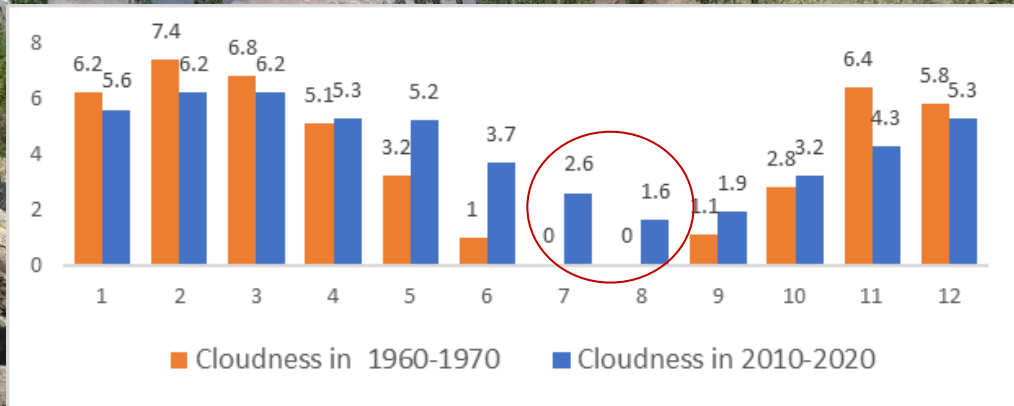
Precipitation Change



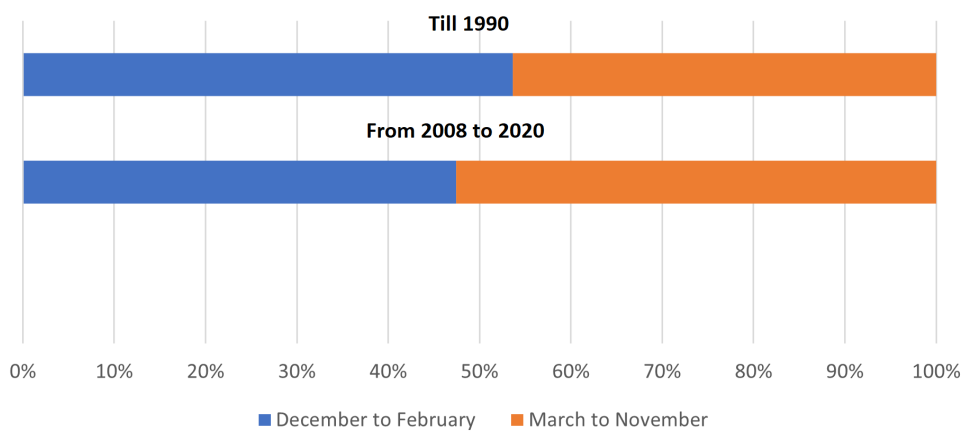
Weather patterns change



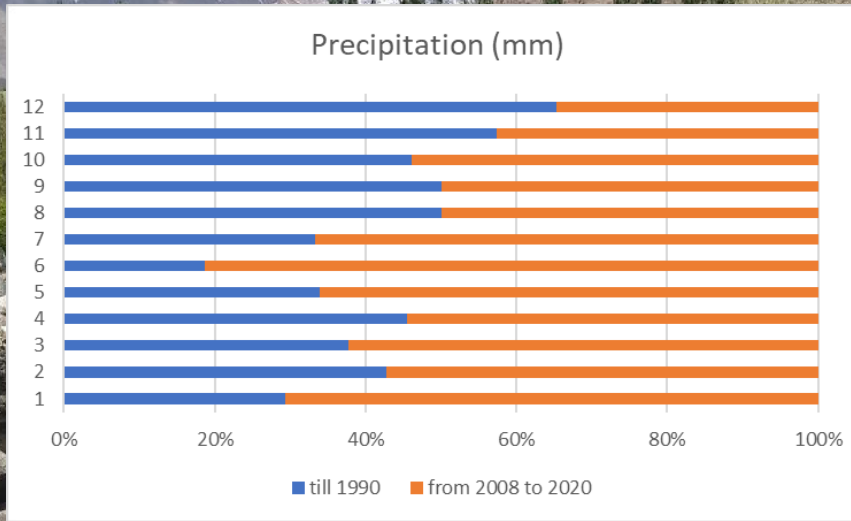
Weather patterns change



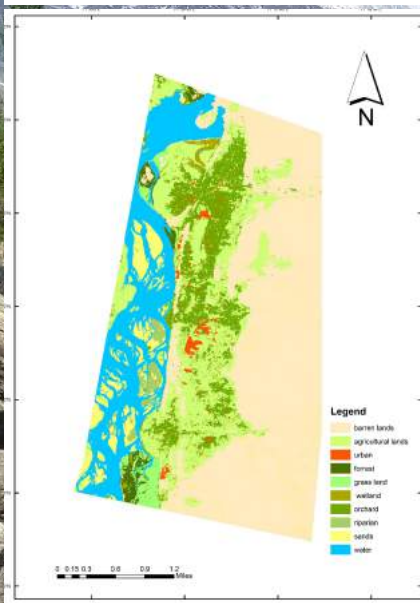
Ratio of solid to liquid precipitation



Rainfall ratio during the year



Land Use and Land Cover Change



LULC Feature	Area (ha) 1990	Area (ha) 2018	% change in LULC Classes
Barren Lands	842	841	0 ↓
Agriculture Field	412	385	-3 ↓
Builtup	10	26	45 ↑
Open Forest	23	24	2 ↑
Grassland and Meadows	25	26	3 ↑
Wetland	1	2	33 ↑
Orchards and Horticulture	193	204	3 ↑
Riparin forest	17	18	3 ↑
Sands	69	66	-2 ↓
Water Body	298	298	0



Conclusion

- Perception of local people closely related to field data;
- Change in precipitation affect the hydrology of the region;
- LU and LC change have been detected;
- Change in weather patterns affect the thermal regime
- Disproportion of precipitation within the season affect agricultural production