



## Concept Note

### Himalayan Climate & Science Institute

HCSI advances climate science and economic development in the Nepali Himalayas. Each project provides training and long-term employment for Sherpa communities in the Khumbu region and aids local, regional, and global climate adaptation efforts. HCSI was founded by Sonam Jangbu Sherpa and Richard Silber ([hcsi-nepal.org](http://hcsi-nepal.org)).

### Project Need

The Hindu Kush Himalayas are warming at three times the global rate, faster than any region outside of the North and South Poles. This warming threatens the livelihoods of Himalayan communities and imperils the primary source of water relied upon by over 20% of the world's population. The accelerated warming of the Himalayas offers a troubling glimpse of what awaits other regions ([Read HCSI's New York Times Op-Ed piece](#)). Unfortunately, the region severely lacks the scientific capacity needed to monitor and mitigate its rapidly changing conditions. By developing monitoring infrastructure and human capital in the Himalayas, scientists can gain the data needed to significantly improve models for the rate of glacial melt in the region and globally.

### Project Summary

HCSI seeks to build the capacity needed for Nepali scientists and community members to maintain and expand vital high altitude automatic weather stations in the Hindu Kush Himalayas, which are crucial for climate adaptation across Asia. The world's highest altitude network of automatic weather stations was installed by HCSI board members Baker Perry and Tom Matthews during the 2019 National Geographic Everest Expedition. They collect uniquely valuable, real-time meteorological data that has already revolutionized the scientific community's understanding of the rate of sublimation and overall ice loss on Everest.

To develop regional capacity, HCSI will establish an annual Weather Station Academy in Phortse, Nepal to train community members to install and maintain high-altitude stations and to disseminate the data generated to the global scientific community. Trainees will also sell meteorological reports on the weather conditions of Everest, creating a sustainable source of revenue for the Phortse community and for the maintenance of the weather stations. (Estimated cost: \$300k over 5 years).

The academy will be led by Nepali climate scientist and HCSI science advisory board member Arbindra Khadka. Dr. Perry and Dr. Matthews will train Arbindra to serve as the primary manager of the stations and to lead all-Nepali expeditions to maintain the network.

### Local Benefits

In addition to helping the Himalayan region prepare for inevitable water insecurity and natural disasters, the project will provide community members with long-term economic opportunities. Historically, research expeditions in the region have hired local people as seasonal porters and guides, leaving them to perform dangerous tasks while excluding them from actual scientific planning and analysis. HCSI will train and employ Sherpa community members, providing safe and sustainable economic betterment while building urgently needed scientific capacity in the region.

HCSI is registered as a nonprofit in Nepal and the United States (EIN: 85-0899793).





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## Khumbu Region Climate Change and Economic Development Project

**Arbindra Khadka** is obtaining his PhD at the University of Grenoble Alpes, France, where he studies the degree to which glacier mass is affected by temperature and precipitation. In 2020, he served as a visiting scholar at ICIMOD and Tribhuvan University, with publications in the Bulletin of the American Meteorological Society, Journal of Glaciology, etc. ([Google Scholar](#)).



**Sonam Sherpa** is co-founder of HCSI and head of the HCSI Phortse Coordinating Committee, which was assembled to support civil society in Phortse, Nepal. Sonam's family has lived in Phortse for generations. Sonam is a graduate of the Central University of Tibetan Studies in Sarnath, Varanasi, India. He is a licensed high-altitude mountain guide with multiple Everest summits, and he is the Director of Operations for International Mountain Trekking, Inc.



### HCSI Phortse Coordinating Committee

- Sonam Jangbu Sherpa
- Lhakpa Nuru
- Ten Gyalzen
- Tashi Gyalzen
- Ang Dawa
- Pemba Rita
- Pemba Gyalzen
- Nawang Tenzing
- Phunuru Sherpa
- Palden Namgye
- Dawa Lhamu
- Kanchhi Yangjin
- Lax Man Adikari
- Fura Tseten Sherpa



**Dr. Baker Perry & Dr. Tom Matthews** co-led the climate team of the National Geographic and Rolex Perpetual Planet Everest Expedition in 2019. The expedition installed five automatic weather stations (AWS) in the Khumbu region, including the two highest stations in the world. They serve on the Science Advisory Board of the Himalayan Climate & Science Institute, and they will be deeply involved in realizing the Weather Station Academy.

