

# POLICY BRIEF

## Generation of Climate Data through **Citizen Science** and its Use for Community Awareness



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Policy Brief

Landslide Environmental Virtual Observatories  
(L-EVO)

## **Executive Summary**

Citizen science, a collaborative approach that engages the general public in scientific research, has emerged as a powerful tool for generating climate data and promoting community awareness. This policy brief explores the potential of citizen science initiatives of Landslide Environmental Virtual Observatories (L-EVO) project in collecting climate data and highlighting their significance in fostering community engagement, education, and action. This brief provides policymakers with an overview of the benefits, challenges, and policy recommendations for leveraging citizen science for climate data generation and community awareness.

## **Introduction**

Climate change poses significant challenges globally, and access to accurate and localized climate (water and weather) data is essential for effective mitigation and adaptation strategies. The Department of Hydrology and Meteorology (DHM), Government of Nepal is the only institute in Nepal that collects and records weather, climate, and hydrological information, observations, predictions, data archive, and re-distribution for other institutions and individuals for research and other uses. Mostly DHM collects the data through insite observation and predicts through data analysis, modeling, and numerical weather predictions. The Government of Nepal started hydrological and meteorological activities in an organized way in 1962. DHM was established in 1964. Currently, there are 282 meteorological and 51 hydrological stations around the country (DHM).

Geographically Nepal is a diverse country, and its elevation ranges from about 60 m to 8848 m (the highest peak of the world) and comprises tropical to alpine climatic zones. Most of the part of Nepal is covered by mid ranges from hills to mountains. It shows that the available stations are not enough to generate proper climate information around the country. To tackle this problem, the L-EVO project has collected data through the citizen science approach which is one of the most reliable and sustainable ways for data collection. Citizen science is the practice of public participation and collaboration in scientific research and such activities help to fulfill the data gaps.

Citizen science approach in the LEVO project has offered a unique opportunity to engage individuals and communities in climate data collection, climate research, fostering a sense of ownership and promoting data-driven decision-making.

## **Approach and Findings**

LEVO project has adopted the citizen science approach by working with citizen scientists (community members, school students and teachers) to disseminate awareness messages, knowledge sharing, and data generation on climate-induced disasters at Bajhang and Bajura. For data collection, citizen scientists from the communities of Budhiganga Municipality and Khaptad Chhededaha Rural Municipality of Bajura and Bidtthadchir Rural Municipality of Bajhang were taken as the caretakers of the rain gauge stations, where the station continuously record the rainfall and temperature data. They were capacitated to take care of the stations, checking the working status of the stations, battery replacement, station cleaning, fillup maintenance logbook and creating awareness about the working mechanism and usability of those data for the community.

The project also formed 5 eco clubs in community schools of Bajhang and Bajura where students and teachers were capacitated and sensitized through training and capacity-building workshops for the usability of climate data, data collection methods, use of soil-moisture sensors, and its handling and data collection.

This project has enabled data collection, allowing for improved spatial coverage and data density. This expanded dataset has contributed to a more comprehensive understanding of climate patterns, including localized variations. Similarly, it has complemented existing climate monitoring networks by providing additional data points, filling gaps in spatial coverage, and capturing data in remote and inaccessible areas of Bajhang and Bajura. This comprehensive dataset will help to enhance the accuracy and robustness of climate models and projections. It has offered valuable educational opportunities for caretakers, fostering scientific literacy, data literacy, and an understanding of climate-related issues.

## **Policy Recommendations**

Citizen science has immense potential to contribute to climate data generation, community awareness, and action. By leveraging the collective efforts of citizens, policymakers can enhance climate research, empower communities, and foster sustainable solutions to address climate change.

**Establishing Guidelines and Standards:** Develop guidelines and standards for citizen science projects, including data collection protocols, quality control measures, and ethical considerations. These guidelines should ensure data reliability, accessibility, and interoperability.

**Enhancing Education and Training:** Invest in educational programs and resources that promote scientific and data literacy, enabling citizens to effectively participate in climate data collection and analysis.

**Strengthening Partnerships:** Foster collaborations between scientists, policymakers, and community organizations to facilitate the integration of citizen science data into climate research, policy development, and decision-making processes.

**Funding Support:** Allocate dedicated funding for citizen science projects focused on climate data generation, community engagement, and climate change education. Explore public-private partnerships to enhance financial sustainability.

**Data Accessibility and Open Science:** Promote open access to citizen science data, ensuring that it is publicly available, easily discoverable, and usable by researchers, policymakers, and communities. Develop user-friendly platforms for data visualization and engagement.

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The Small Earth Nepal (SEN) is a non-governmental organization established in March 2001. SEN was founded to develop and enhance scientists-teacher-student-community (STSC) networks to promote sustainable lifestyles through education and knowledge sharing. Action oriented research, science awareness, informed advocacy and capacity building of young researchers and practitioners are its primary approaches to this work. SEN supports activities that reduce the impacts of human activities on local, regional and global environments. It works broadly in the field of environment change research and practice, however, it focuses especially on water, weather and climate information; climate change issues; and advocacy for renewable energy.

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